THE AMERICAN GAS LIGHT JOURNAL

REDMANAKENNY.N.Y.

PUBLISHING OFFICE No. 42 PINE STREET

DEVOTED TO THE INTERESTS OF ILLUMINATION, HEATING, MECHANICAL, CHEMICAL AND GENERAL SCIENCE

VOLUME LXXVIII. No 12. Whole No. 1,450. | NEW YORK, MONDAY, MARCH 23, 1903. | $3 PER ANNUM. IN ADVANCE.

A. M. CALLENDER & CO., Proprietors. C. E. SANDERSON, Manager. THOMAS J. CUNNINGHAM and ELBERT P. CALLENDER, Editors.

ENTERED AT THE POST OFFICE AT NEW YORK, N. Y., AS SECOND-CLASS MATTER.

Published on each Monday of the year, at No. 42 Pine Street, New York.

Telephone.—2996 John.

Collections are invariably made directly from this office for subscriptions, advertisements, etc. We have agents to solicit the same, but they are not authorized to receipt for money.

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[OFFICIAL NOTICE.]

Wrinkle Department, Western Gas Association.

WESTERN GAS ASSOCIATION,
OFFICE OF THE WRINKLE DEPARTMENT,
721 Citizens Building, Cleveland, O.

To the Members of the Western Gas Association: The Wrinkle Department is now ready to receive contributions for the 1903 collection, and I would thank you to please send a sketch or description of any new device or method you may have to the above address.

Any sketch, photograph or drawing, accompanied by a written explanation, of a new idea will be gratefully received, and it is hoped that you will comply promptly by favoring us with a contribution.

Respectfully,
W. E. STEINWEDELL,
Editor Wrinkle Department.

NINETEENTH ANNUAL MEETING, OHIO GAS LIGHT ASSOCIATION.

Owing to some mix-up in the telegraphic service, we are unable to give our usual detailed advance report of the doings at the Cincinnati meeting (the Nineteenth) of the Ohio Gas Light Association, which was brought off at the Grand Hotel, Wednesday, Thursday and Friday of last week. The telegraph told us that the initial session of Wednesday was a complete success. The weather was clear and warm, and about 200 delegates listened to the call to order by the President, Mr. C. W. Andrews, of Hamilton, O. The Association was formally welcomed to the city by the Mayor, Mr. Julius Fleischman, and the response to the welcome was made by the Vice-President, Mr. John D. McIlhenny. In the regular order much routine business was disposed of, after which came the address of the President, a ventilation of the Wrinkle Department, edited by Mr. E. E. Eysenbach and a recount of the "Progress Department," as presented by the Editor, Mr. Irvin Butterworth. The paper by Mr. W. A. Baehr, on the "Construction and Operation of Gas Benches," was considered, as was also the paper by Mr. F. W. Stone, on "Natural Gas as a Factor in the Artificial Gas Business." The attendance was the best in the history of the Association. Here the telegraph failed us, but the programme announces that on Wednesday evening the Association was to visit the Grand Opera House, to see and hear Julia Marlowe in "The Cavalier," at the invitation of the Cincinnati Gas and Electric Company. The proceedings for Thursday were: The Question Box, of much content, gotten together by the activity of Editor Henry L. Doherty; the paper by Mr. Donald McDonald, on "Domestic Heating by Gas;" a visit by special train to the coke oven works at Hamilton, O., at the invitation of the Hamilton Otto Coke Company—a luncheon was to be served at Hamilton by a firm of gas stove makers; and in the evening a dinner was to be served at the Grand Hotel, the hosts being the Stacey Mfg. Company and the United States Cast Iron Pipe and Foundry Company. The programme for Friday included several committee reports, the presentation of the "Novelty Advertising Department," edited by Mr. B. W. Perkins; the election of officers. The conclusion was to have been made in the consideration of general business.

BRIEFLY TOLD.

SOMETHING THAT HAPPENED AT AN ANNUAL MEETING.—"Of course, annual meetings must take place and occur in regularly organized bodies, and so it came to pass that the Guild of Gas Managers held its last annual meeting in Young's Hotel the afternoon of the 14th inst.—to be sure, your correspondent is certain that everybody who is anybody knows where Young's is. The meeting was quite like all those which are assisted in by the Guild's men, good and true. The proceedings of record, however, were a bit out of the beaten track of the Guild's ways, in that the major part of the doings concerned a minor member. The routine showed that those about to depart may be honored, for the annual election developed the naming to the Presidency of Mr. Walter R. Addicks, formerly of the Boston Gas Light Company, but now Second Vice-President of the Consolidated Gas Company, of your city. When the routine had been finished and the banquet hall had been

LIBRARY OF CONGRESS MAR 23 1903 SMITHSONIAN DEPOSIT.

reached, the 'retiring Easterner' still remained the controlling spirit, for at the appropriate time in the gustatory proceedings, President-elect Addicks was presented by the Guild with a magnificent specimen of the silversmith's art in the shape of a loving cup, the retaining power of which, although frequently tried, never was emptied. Mr. Charles F. Prichard, whose whiskers were never even seemingly dampened, was the accepted orator of the occasion. It is needless to say that his work was well done, and it seems equally superfluous to remark, we all hope, that Walter R. Addicks is out of the frying-pan, for he has never been much afraid of the fire.—M."

THE ASSOCIATION OF ELECTRIC LIGHTING ENGINEERS, OF NEW ENGLAND.—Last Wednesday the first annual meeting of the Association of Electric Engineers, of New England, was held at Young's Hotel, under the Presidency of Mr. Chas. F. Prichard, of Lynn, Mass., whose fealty as a gas man (for he is one of the Vice-Presidents of the American Gas Light Association) may not be doubted through his regarding electricity supply as a "good thing in certain locations." The meeting was a success, if a notable attendance, interesting papers, lively discussions and thorough sociability may be accepted as evidence in such line. One paper that attracted much attention was by Mr. W. E. Holmes, of the Newton and Watertown Gas Light Company, whose topic was, "Street Incandescent Lighting." The list of original members carries the names of many gas men; for instance: C. F. Prichard, George B. Stetson, W. A. Learned, Henry F. Coggeshall, Samuel J. Fowler and Col. Frank S. Richardson. As is usual in these instances much of the success of the meeting was due to the well-directed efforts of the Secretary, Fred. G. Havlin.

NOTES.—

THE negotiations looking to the purchase of the Lachine Hydraulic and Land Company, by the proprietors of the Montreal (Can.) Light, Heat and Power Company, have been completed. This gives to the latter concern complete possession of the gas and electric supply of the Canadian-French city.

AT a special meeting of the shareholders in the Kings County Electric Light and Power Company, of Brooklyn, N. Y., it was determined to increase the capital stock from $2,500,000 to $5,000,000.

MR. BRYCE A. KINNEY has been appointed State Gas Inspector for Indiana, vice Mr. J. C. Leach.

THE voters of Rich Hill, Mo., have assented to the purchase, for operation on municipal account, of the heretofore privately administered plants of the Rich Hill Water, Light and Fuel Company.

THE Dawes syndicate, of Chicago, has purchased the properties of the Michigan City (Ind.) Gas Company.

A "TRUE HERO" was developed some days ago in the person of C. G. Covert, Mayor of New Albany, Ind., who will no longer use gas in the lighting of his house. The Mayor is a member of one of the local labor unions, which aggregations some time ago declared a boycott on the Evansville Gas and Electric Light Company, a portion of whose duty it is to supply gas and electric currents to the residents of New Albany. What a public servant? Or else, what an——?

A CORRESPONDENT, writing under date of the 14th inst., forwards the following from Spokane, Wash.: "The Spokane Gas Light Company has not taken advantage of the high price of coal to increase the price of gas, but has, on the contrary, been cutting down the price until the consumer in this city now gets his gas for light and fuel purposes about as reasonably as could be expected. This time one year ago the maximum price per 1,000 cubic feet was $2.50, but the cutting process has been going on until now it is $1.50 to $1.75 per 1,000. These reductions have been made without any demand or clamor from the public. The business of the Company has increased to such an extent that its revenues will justify the lowering of rates. In addition to these concessions made to its patrons the Company has perfected arrangements for very extensive and expensive improvements during the summer season, such as the laying of mains to Lidgerwood and Hillyard, and the building of a $200,000 plant. Plans for the plant have been under consideration during the past week, and when it is completed, as it will be by fall, the Spokane Gas Company will possess one of the most complete and best equipped plants in the country. The new works will be constructed with a view to the increasing population and wealth of the city, and will be able to take care of all the demands that may be made upon them for years to come. These works will have what is known as long distance transmission, which will be very extensive in character, and enable the consumer in nearby towns to use gas as cheaply as the resident of the city. With these additional facilities gas can be made cheaper in Spokane than in any city of its size in the United States."

[OFFICIAL REPORT—REVISED BY THE SECRETARY.—CONTINUED FROM PAGE 407]

THIRTY-THIRD ANNUAL MEETING OF THE NEW ENGLAND ASSOCIATION OF GAS ENGINEERS.

HELD IN YOUNG'S HOTEL, BOSTON, MASS., FEB. 18 AND 19, 1903.

FIRST DAY, FEB. 18—MORNING SESSION.

The President—We have a few minutes left before the hour for adjournment. Will someone tell how near to a gasholder it is safe to have a gas lamp? That question is asked in all seriousness. Has anyone got one within 20 feet?

Mr. Coggeshall—I had one within 3 feet.

The President—Anyone within less than 3 feet? Is that an inclosed holder?

Mr. Coggeshall—Yes.

The President—And the lights inside?

Mr. Coggeshall—No; lights in the walls.

The President—I suppose this refers to a naked light. Is there any one here who has a holder with a light closer than 3 feet?

Mr. Nettleton—May I ask if it refers to an inclosed holder?

The President—I am not able to state that.

The Secretary—I suppose not.

Mr. Nettleton—Not an inclosed holder?

The President—I should think it meant where the holder could blow and the ignition of gas or oil take place from the lamp.

The President—We have time left (if you have settled on 3 feet as the distance) to discuss the question of purifiers. What members have had experience with two boxes of extra depth? Can anyone state of his knowledge which system is preferable, 2 boxes of extra depth, or 4 boxes with center seal? As I pointed out this morning, you can use purifiers that are equipped with the center seal, under the Choller system of running the gas backwards and forwards, by turning 45° instead of 90°. It will keep in service the first box in the series, which will still be the first box in the series, only the gas will enter at the outlet, and you will put in service the former idle box, throwing out of service the 2 boxes which were last in series, provided the 8 compartments of the body of the center valve are accurately made.

Mr. Prichard—I might throw some negative testimony on that question. I used during last winter 4 boxes of extra depth and have been unable to keep the sulphur within the limit required by the law.

The President—We are very glad to get that.

Mr. Sherman—Mr. President, if Mr. Forstall, Secretary of the American Association, is in the room, he can give us some information on that point.

Mr. Forstall—I think one way of looking at that question is this: Unfortunately no purifying material will take all the impurities out of the gas up to the time that it is incapable of working. In other words, you have to keep at least one of your boxes filled with practically clean material. If you have 2 boxes you have to keep 50 per cent. of your purifying material practically clean; if you have 4 boxes you only have to keep 25 per cent.; if you have 6 boxes you only have to keep 16 per cent.

The President—Members will recollect the paper that Mr. Miller read before the Association, showing the amount of sulphur taken out in the several boxes. Mr. Forstall has condensed a good deal of comment in his statement. Will anybody else contribute to the information asked for?

Mr. Woodward—In our new works we have 2 boxes of pretty good depth, and have had very good results from them. The Company is very well satisfied with their working.

The President—Are you using the coal that Mr. Prichard describes?

Mr. Woodward—We have had trouble with sulphur. But what companies have not had such troubles this winter? We obviate that partly by putting a layer of lime on top of the oxide.

Mr. Forstall—If I may be allowed to speak again, I would like to ask Mr. Woodward what the area of his boxes is, and what amount of gas he is putting through them per day? I have found 2 box sets do pretty good work, but they were so very large in proportion to the amount of gas they were taking care of that it does not prove anything as to the value of such sets. When those boxes are getting to be worked up to anything like what the capacity should be of 4 box sets of the same area there is going to be a different story to tell.

The President—I have no doubt Pittsfield looks forward to the growth of business that will make it neeessary to change its equipment, or add to it.

Mr. Coffin—I have some facts on purification, and found, from analysis made from different parts of the work, from the different boxes,

that it was an actual fact that, with 3 boxes running (a 4-box set), the first box was doing 75 per cent. of the work, the second 20 per cent., and the third 5 per cent. Now, if you cut that down to a 2-box set, in my judgment you would lose 25 per cent. or 33 per cent. of your purification, with the same material.

The President—Will Mr. Woodward reply to Mr. Forstall's question as to the area of the box and the rate of flow per unit of time?

Mr. Woodward—Our boxes are very large for the amount of business we are doing, but it is an old saying that a company should build purifiers as large as it can get money for.

Mr. Prichard—I would like to ask Mr. Woodward if he believes it would be possible to keep within the limits of sulphur required by the State, if he were having an inspection once a week and had two boxes?

Mr. Woodward—Yes; I do. The question rests on the rapidity with which you can change the boxes. The dumping and the conveyers that help you make the change so rapidly.

Mr. Prichard—The point would be that you have to change them so rapidly that the State Inspector doesn't get you.

Mr. Allyn—I wish Mr. Woodward would state the size of the boxes, and what his daily output is.

Mr. Woodward—The size of the boxes is 16 by 20 by 5 feet deep.

The President—And the rate of make?

Mr. Woodward—Our make has not exceeded 15,000 an hour.

The President—"Will you state the relation of Texas oil to the gas business at present?" Has any one in New England used any considerable quantity of Texas oil. Mr. Allyn, you have analyzed it, have you not?

Mr. Allen—We use Texas oil as fuel only.

Mr. J. J. Humphreys, Jr.—I suggest that Mr. Shelton answer the question.

The President—Mr. Shelton, will you tell us the use of Texas oil in the South?

Mr. Shelton—Just what is the question, Mr. President?

The President—What is the relation of Texas oil to the gas business at present?

Mr. Shelton—Very unsatisfactory, sir. I mean the supply of Texas oil.

The President—And the use?

Mr. Shelton—Very satisfactory. I have used a great deal of it in New Orleans, La., and a great deal of it at Staten Island, N. Y.

The President—How much extra work does it throw on the purifier?

Mr. Shelton—At Staten Island our experience was extremely satisfactory. We found very little increased purification trouble or labor or expense. At New Orleans, where we used the straight crude oil, in no sense refined through any of the heavier portions being taken out, we increased our purifying charges and labor 50 to 75 per cent.

The President—Is that Beaumont oil?

Mr. Shelton—Yes, sir.

The President—And what percentage of tar do you get in relation to the oil used?

Mr. Shelton—I cannot give you off-hand the exact figures, but it is not materially greater than using the crude oil from the Ohio or Northern fields.

The President—I am sure we are very much obliged for that answer.

Mr. Shelton—I can say that my conclusion is, after having used probably as much Texas oil as any gas interest in the country, that we are only too glad to have it if we can get it in any reasonable supaly—at any reasonable cost, independent of quantity—but from the present status of the Texas fields, the tremendous shipments for fuel, the uncertainty as to the future of the fields, and the reluctance of the oil companies to make contracts for what is not above ground, the price in the last few months has gone up very remarkably, and we no longer feel that we can get the cheap Texas oil that one year ago we did get.

The President—Do you find, Mr. Shelton, that your experience on Staten Island carries out Mr. Norris's suggestion as to cold weather reducing the candle power of the gas?

Mr. Shelton—No, sir.

On motion, an adjournment was ordered, to terminate at 2 P.M.

FIRST DAY.—AFTERNOON SESSION.

The Association reassembled, pursuant to adjournment.

Resuming the Discussion on the Special Report of Directors Regarding the Library Fund, Etc.

The President—The first matter of business before the Association is the Report of the Board of Directors, which was laid upon the table this morning. What action do you wish to take? If there is no objection, I would like first to read the circular[1] sent out 2 months ago bringing up the whole matter. This is dated December 22d, "To the Members of the New England Association of Gas Engineers and the Gas Companies of New England." [The President then read the circular.]

Continuing the President said—The report as made by the Board of Directors explains that that sum has been raised, and that if these subscriptions are accepted the largest part of the sum will go to publish the Proceedings. Without this money the Proceedings cannot be published unless you raise the dues. We can issue one more volume, perhaps, by using the permanent fund, but as a settled policy of the Association we cannot continue to publish without raising the dues. It seemed to the Directors that this gave an opportunity in 5 years to catch up with everything, and then it would be easier to continue the current publication.

[Reading down to the words "Treasury of the Association."]

That is, the annual balance, the excess of receipts over expenditures per annum, will run about $100 to $150.

[Continuing the reading of the report, down to the words "Reprint of Proceedings"]

Any additional subscriptions would be wholly devoted to printing. You understand that we have, however, raised the sum that it was set out to get.

[Concluding the reading of the report.]

Mr. Coggeshall—Mr. President, I am rather thick headed. I would like an explanation. Is it the idea to print the Proceedings of the Association, from its first inception in 1871?

The President—Not from 1871, but from 1876—the first written and printed record that we have. The list of papers that has been printed will show how far back we can go.

Mr. Coggeshall—How would it do for the different companies that have these volumes to contribute—for instance, our Company say three volumes—so as to save the expense of printing?

The President—The idea was to publish the Proceedings in book form.

Mr. Coggeshall—We have them in book form.

The President—And issue them to all members of the Association and place them on sale, so that they would be accessible.

Mr. Coggeshall—Every company that is a member of this Association has those volumes. You will find them printed.

The President—The Association itself has one copy of all the Proceedings that have ever been printed, and that would furnish the basis.

Mr. Coggeshall—And the companies have one of each.

The President—Well, some companies.

Mr. Coggeshall—I know I have them all.

The President—I doubt very much whether there are many so fortunate as you are.

Mr. Coggeshall—I thought they would all have them. I did not see why we could not contribute; for instance, our Company could contribute 3, 4 or 5 of those volumes of the Proceedings, if other companies would take it up, so as to save all this expense.

The President—It has to be reprinted in manifold to make it accessible to all the members. The issue would have to be perhaps 300 volumes of each set of Proceedings.

Mr. Addicks—As I understand the situation that exists to-day, the Association has a surplus each year of about $150 from the annual dues. This amount may be applied to publishing Proceedings. The cost of publishing a single year's Proceedings is $257. In other words, we lack $107 per annum in income to publish the current Proceedings. As we have 220 members, if our present annual dues were $3.50 we could publish our current Proceedings and continue along otherwise as we have been doing. This, however, would not—

The President—May I interrupt you one moment, to say that the surplus has not reached $100 in either of the past 2 years. That makes a slight difference.

Mr. Addicks—Then it would require $3.75, perhaps, in order to do that. This, however, would not enable us to publish the Proceedings of previous years so as to make our record complete. The idea of partially occupying a library, as suggested by the committee, is not without precedent. The American Society of Naval Architects and Marine Engineers have the privilege of the American Society of Mechanical Engineers' library and building, paying a small sum in a similar way as proposed by our committee. That has worked very nicely. I personally, while not being a member of the Mechanical Engineers' Society, have used that library as a member of the Naval Architects' and Marine Engineers' Society. I want to say, Mr. President, I am thoroughly in favor of the library idea, and also of continuing to publish our current Proceedings

1. See JOURNAL, ante, p. 363.

and to publish the Proceedings of previous years. I would be in favor of this method of doing it proposed by the committee, if the Association is unwilling to increase the dues to an amount sufficient to care for this matter, without going to the New England gas companies. If the dues were increased to $5, or a net increase of $2 per annum, it would give an increased income of $440 per annum, which is a larger amount than has yet been subscribed for the library fund. I think, as a member of this Association, that this Association should increase the dues for a period of 5 years, in order to accomplish what the Directors want to accomplish, rather than to accept the subscriptions that have been made by the gas companies. While saying this, I do not want to make it appear that as a member I would be ungrateful in not accepting such subscriptions, but I should think it would be more satisfactory to the Association to take care of the current work of the Association itself. If the subscription is accepted, I think there should be some provision that the company subscribing should have a complete set of the Proceedings furnished it. This does not seem to have been provided in the scheme. I don't care, Mr. President, to make any motion on the lines on which I hope the Association will move, until there may be some further discussion of the matter. We can limit our increase of dues for a definite period, if it is thought best, but in any case I think the annual dues will have to be at least $4 in order to maintain the publication, and I don't think the extra dollar, making a total of $5, is a large amount for any member of this Association to pay. That would certainly accomplish, if I understand the report correctly, everything that the committee would like carried out.

The President—I find from the old records that the annual assessment used to be $10. Then it was lowered to $5, with a large increase in membership. Then it was lowered to $3, the Association still continuing to increase in membership, and it is at $3 now, with the result that the Association is larger in numbers than it has ever been. I want to correct a slight misapprehension with respect to these subscriptions. While several companies have contributed largely, there have been a great many individual subscriptions from members of the Association. It is not altogether a company subscription.

Mr. Sherman—I would like to ask what the expense of keeping open the headquarters in connection with the Society of Civil Engineers would amount to per year.

The President—We think it would be possible to arrange it for the $100 a year. That would cover everything. The room is open from 9 A.M. to 5 P.M., and a stenographer is there all the time. Anyone wishing to use the library at any other time can purchase a key for 25 cents. The room is heated, lighted, and in every way cared for. The $100 covers shelving, heat and everything else.

Mr. Sherman—It is very desirable that we have rooms where we can deposit our books and pamphlets and the different journals which we take. I had occasion some years ago to consult the back numbers of the *Journal of Gas Lighting*. Some of the older members remember the craze that was on about 15 years ago regarding working with unsealed dips. The Company that I represent was threatened with litigation by parties who had secured a patent on that method of working, claiming that we were infringing their patent. In looking over the back numbers of the English *Journal* we found a description of a patent which was taken out 15 years before that by a man named Cockey, which overthrew all the claims that had been put into the patent office in this country by half a dozen different parties, and set them all aside. If we had not had this information we would have had to pay quite a number of hundred dollars. The claim was very large, and it was set aside by our ability to show that they had not any patent; in other words, it had been anticipated years before by an English patent. It will be very desirable if we can have a reference library, and our members, I think, would have very frequent occasion to consult it. They would find that there was very little new in the world in the gas business.

Mr. Addicks—May I simply add one word in relation to what the President said, that some of the members had individually subscribed. That only means for those individual members that their dues to this Association are largely increased for the benefit of the other members.

Mr. J. J. Humphreys, Jr.—I think that, like the other engineering societies, we should cease to carry round our headquarters in the Secretary's hat and get a place, as most of the other societies have now, where we can have a permanent address and place on file what few papers we own or may acquire. Personally I would be glad to see the dues raised to cover every current expense and to provide some surplus, but also I think that we should get these Proceedings out as quickly as possible.

Mr. Shelton—Mr. President, before that motion is put I would like to speak on this subject. I very earnestly hope that this Association will take some steps to keep abreast of the tendency towards easy access to information that we ought to have on tap. The Association has gotten along very well, it might be said, for 30 odd years without having had any kind of headquarters, and without having any handy information records; but I think the time has come when we should go forward a little bit as we do in every other line; and unless this Association does, the other Gas Associations of this country will distinctly outstrip it. And I don't think the New England Association proposes for one minute to play second fiddle to any other Gas Association. The American Association, in its educational work and through the medium of its Secretary's headquarters in New York, has built up an exceedingly good reference library, and there are many men who, when they get to New York, take occasion to look up information that they want on any point. The Western Gas Association is taking steps—and the work is now underway—for a card index of all the practical papers and articles in recent gas literature, to be distributed to its members, so that, at any minute almost, a man can put his finger on the whole record of the information on any particular point that he happens to be "up against" or to be looking up. The Pacific Association is taking two or three such steps to advance its work. The Ohio Association is active and progressive in covering more than it originally set out to do. This Association, I think, has continued to read papers for 30 years, and has not done very much more excepting to build up strength and good fellowship and strong integral factors of general success. It seems to me almost a self-evident proposition that, if we can have a place in the city here where we can look up any technical point or record that we want to, it would be of great use to us. Scarcely a season goes by without someone wanting to get special information on some particular point. For instance, the question of dry lid purifiers (doing away with wet seals and blowing cups and all that sort of thing) is one that is coming up. High pressure distribution is another growing subject. Inclined retorts, or even the old questions of how to dispose of coke and to increase sales and that sort of thing, are others. A man may be in a town up in the State and figure that he is not getting what he should for his coke. He has a hazy idea that there have been two or three papers on how to market coke, and how to get the best results and work it up, but he cannot put his fingers on them; he cannot get hold of "Gifford's hat;" he cannot tell where the information can be found. If after a season or two we all knew, from hearing about it, that there was a room around the corner in Boston where one could go at any minute and find an index or the complete file of all that has appeared and been written upon the subject, I think there are a good many men in the course of the season who would avail themselves of that and make a particular point to look up what they are after under such auspices. The expense is trifling it seems to me for the results which would be secured. Personally I am heartily in favor of this move. It does not mean very much money on the part of the Association. After 2 or 3 years' trial, as the President says, it can either be dropped or not; but I venture to predict that the Association then would not think for a moment of discontinuing its reference library, and when that library is once started I am sure it will grow rapidly by contributions from different companies, by books that are published from time to time, and by the back record of this Association's papers, which ought to be compiled and bound and put there for access. It seems to me, however, that there is a very great question as to the proper way of accomplishing this. The proposed plan is to use the surplus money we have in the treasury, and to avail ourselves of private subscriptions for the balance, the total of which would "pay all the freight" and print the back records—copies of which would go to all the members of this Association whether they subscribed or not. It does not seem to me that that is fair. I know of one member of the Association who has contributed, in addition to his dues, a very fair sum for such purpose, considering his individual salary, and the fellows who don't subscribe, who don't come in on this movement, still get the benefit of what he pays, because they will get copies of the back records, and they will have the full privileges of this meeting room and reference library referred to. The only fair way is for the Association to "pay its own freight." While questions of affecting the membership, a fear of not getting more people to join every year, and other ghosts of that sort, are thrown up, the practical effect of raising the dues a dollar or two a year would never be noticed, in my personal opinion. The President said that we started here with dues of $10, that they then came down to $5, and that they then came down to $3, and it was suggested that the increased membership was the result of the $3 rate. I don't believe any such thing. I believe that the increased membership has come from the general growth of the business and conditions at large. I believe this Association has more members and is more prosperous than ever, and is doing more work

in the way of papers, and is protecting and advancing the gas interests of New England as a result of its publicity and its advertising, its team work, and that its success is due to that rather than to the mere fact of the $3 annual fee. Three dollars is a truly nominal sum, I might say, for membership, in the connections and information and comfort in the business that this Association gives. I believe that we could easily afford an increase. I bear in mind those who have to count every dollar and those who do not. I believe those who can afford to pay $3 and are willing to pay $3 will practically just as readily be willing to pay $4 or even $5. Before a motion is put that the Association should take care of this work (which ought to be done to keep abreast of the times and to amplify the work of the Association) by accepting a subscription of a comparatively small number of the membership for the benefit of all, and putting ourselves in the position that that implies, we ought to see if it is not reasonably possible to raise the dues a dollar or two, if you please, only for such a time as is necessary to clear up this work and get a good library and see how it works. If we don't like it after 3 years, or after 5 years, there is nothing to hinder rearranging then just as far as we please.

The President—There is a precedent—in respect to printing Proceedings and distributing them to members who were not members at the time the proceedings took place—in the Western Association which has been for some years reprinting the back years and distributing them to those who are now members.

Mr. White—Mr. President, as one of the younger members of the Association I have been very much interested in the remarks made, and especially those of Mr. Prichard earlier in the session. I have felt that these proceedings would never be any more valuable than they would at the present time, especially to the younger members of the Association and the gas fraternity. Mr. Sherman has remarked that many had copies of the AMERICAN GAS LIGHT JOURNAL containing the records of the proceedings of the early meetings. He might have asked how many had such copies. I was very sorry that that question was not put, so as to get an expression of opinion along those lines. I feel that the small additional tax on each member for the early publication of the Proceedings would be a trifle compared to the results obtained. I had occasion 2 years ago to look up some matters, and I went to the Boston Public Library. I spent 2 hours trying to get some information. A mass of books was brought to me that were of really no practical value for the information which I desired. I am safe in saying that at that time there were few books there that were really up to date along the lines of gas work. I trust and earnestly hope that some definite action may be taken for increasing the dues so that a suitable amount may be raised to publish these Proceedings at once, as I said before, when they will be the most valuable, at least to me. I don't want them 5 or 10 years from now; they would be more valuable to-day than at that time.

Mr. Shelton—Mr. President, I want to add one word. I think that most of us have not back copies of the AMERICAN GAS LIGHT JOURNAL. I started to bind those that I had the other day, and I found that I was shy a great many. More than that, the publication of the New England Proceedings is for *convenience*. The old copies of the JOURNAL get mislaid. Subscriptions may not have been taken, or the preceding superintendent may have carried the papers away with him to his next place, as they sometimes do. He may consider them his personal property rather than the company's, and sometimes they are. I feel that the fact that the companies in theory have subscribed to the JOURNAL for a number of years does not meet the case at all. What we want is a handy compendium of this Association's papers in a bound volume right in our own book-rack. As far as the Association's headquarters is concerned, and the ability to get an index of all the prominent gas articles in the last 20 or 25 years, on behalf of the Western Gas Association I herewith present to the New England Association a complete index (when issued this coming spring, in May) of all of the gas literature so catalogued and that has been published in the last 20 or 25 years, and with the compliments of the Western Association. [Applause.]

Mr. White—If I may speak again, at the suggestion of one of the members I move an amendment to the motion that has been made that the dues for the next 5 years be placed at $5.

Mr. Addicks—I second that motion.

The President—The Board of Directors, if I may speak for them, do not feel that they have given you a perfect plan for accomplishing the work that you have in mind. You all seem to want the work done. At all events, we have succeeded in showing that you are tremendously interested in the whole subject.

Mr. Addicks—Mr. President, I move that the report of the Directors be accepted, that the library fund and the publication of the Proceedings be undertaken, that in order to defray the expense the dues be raised for a period of 5 years from $3 to $5, and that the President and Secretary notify those who have subscribed that this action has been taken and thank them for the assistance that they have given in the premises, but say that the Association will not require the money. [Seconded.]

The President—Are you ready for the question? [Adopted.] It is delightful, gentlemen, to know that we are going to have those Proceedings.

Mr. Prichard—Mr. President, following what I said this morning, the thought occurred to me just now that we have lying idle a sum of $500. I would suggest that you consider whether it would not be wise to use that fund immediately in publishing recent Proceedings of the Association, and make the money good later on. Let us get the benefit of this thing at once, while we are still here.

The President—Will Mr. Prichard make a motion that will authorize the Directors to dispose of the permanent fund in conformity with the general purpose of the publication of Proceedings? It is not necessary, but it would be satisfactory, I think, to the Directors to have their power reinforced in this matter.

Mr. Prichard—I would move, Mr. President, that the Directors be authorized to expend whatever unexpended balance there is on hand at the present time, in addition to the permanent fund, this fund to be made good later from the increased dues, in publishing as many of the yearly Proceedings of the most recent years as it is possible to publish, and that the Board be also authorized to expend any sum which in their judgment is reasonable in employing such help as is necessary to expedite this issue. [Seconded and adopted.]

The President—In soliciting the subscriptions (now a past issue), the Board of Directors had in mind the disinclination that had sometimes been shown to raise the assessment, and it was an endeavor on the part of the Board to accomplish the same work without taking the money from people who might not be able to subscribe. I am very glad that we have reached the same end by standing on our own feet.

REPORT OF COMMITTEE ON PRESIDENT'S ADDRESS.

Mr. C. F. Prichard, of the Committee on President's Address, read the following report thereon:

To the New England Association of Gas Engineers: Your Committee recommend to this Association a careful consideration of the points brought out on the address of the President. Many of the thoughts suggested can be carried out by every member of this Association with profit to himself and his company.

The address puts before the Association in a clear and concise manner the important events of the past year. A valuable lesson can be drawn for future guidance, on his note of warning regarding the difficulty of securing future supplies and construction.

The decision of Judge Brown, quoted from at length, should be remembered in the suit for any damage from electrolysis. The determination of the Commission in the Holyoke case given by the President in detail, will probably establish the practice and accordingly should be borne in mind. His recommendation of the publication of the "Proceedings" of the Association is one of vital importance, and some plan should be devised to accomplish this quickly that the members may realize an immediate benefit.

C. F. PRICHARD,
H. A. ALLYN,
F. C. SHERMAN,
} Committee.

On motion, the report was accepted and placed on file.

TWO TELEGRAMS OF SYMPATHY.

Mr. Barnes—Before proceeding to the consideration of the next paper, I have a suggestion to make to the meeting. I learned to-day that Mr. A. B. Slater, I think one of the founders of this Association, certainly one of its Past-Presidents and an honored member, and Mr. C. D. Lamson, a man who may be described in the same way, are both sick at home and are unable to attend this meeting. I move, sir, that a committee be appointed to draw up and send, at the expense of the Association, messages to these two gentlemen, conveying to them the greetings of the Association, our regret at their enforced absence, and best wishes for a speedy return to good health. [Adopted.]

The President appointed Mr. A. M. Barnes a committee to send the dispatches.

The President—We will now listen to the reading of the paper on

AN EXPERIENCE WITH INCANDESCENT LIGHTING,

by Mr. A. F. Cooper, of Exeter, N. H.

Mr. President and Gentlemen of the Association: I have not anything new to present you to-day. This paper was written, knowing

that a number of gas companies are entering the field of lighting by the use of the gas arc. The questions presented to me, and which I submit to you, are, "Shall we charge a maintenance?" "Furnish them free of expense!" "Or sell them outright?"

The statements I shall make in this paper may not be correct, but whatever they are I make them, and if they are wrong I wish to be corrected. My object is to find out what you know about incandescent gas lighting before the discussion is over.

We have heard a paper on "How to Collect Bills," and have had discussions about the gas meter, purification, and appliances for selling gas. I think if we could get the incandescent lighting connected with these other ideas, we might possibly have a chain wherewith to hold all our consumers.

One more suggestion I would like to make in regard to the Welsbach arc is, as to the small tube which supplies the pilot light. I think it would be better if made a little larger in diameter, the orifice on the top being small as now, and then have a screw thread to check the flow to suit. My experience has been that these small tubes corrode and choke the supply of gas. I have used electricity for lighting the gas arc for about 4 years, and found it very satisfactory. I don't know that this can be done without the use of the chimney, but think it can.

The Welsbach arc can, and should be, regulated so as to be practically noiseless.

We do not attempt in this paper to give the exact candle power per foot of gas burned, but the practical manner in which the incandescent gas light may be handled to give the best satisfaction to our customers.

The use of the burner as a general lighting medium; for a library or study lamp; by the grouping together of two or more of these lights, for the purpose of lighting large areas, "The so called Gas Arc."

As a general lighting medium, we mean where there is a general distribution of the burners on chandeliers, brackets or pillars. We use the Welsbach No. 2, or No. 60, with the apple or pear-shaped globe. A large number of these lights will be used on spring brackets. Try and avoid putting one on a partition wall near where the door closes, as the jar caused by closing the door will shorten the life of the mantle. Just the same trouble will occur if you put one on the side of a store window against which the door closes, or up through the center of a window.

On the No. 2 adjust the gas check before burning off the mantle. We have a needle of the exact size needed, but a competent man can tell by looking through the tube. If you remove the gas check, when you replace it in the tube have the holes under cover rather than opposite the air ducts. The No. 60 can be easily regulated after you burn off the mantle. We recommend the check now used on the No. 60 and No. 34, as a practically perfect adjustment to pressure can readily be made.

Your consumers can be educated to the use of this check, although some trouble may occur at first. Our pressure varies one inch between night and day. When we adjust to day pressure we leave the mantle one-half filled; the upper half will show a light brown color. When the pressure is turned on the mantle will be filled. Keep low rather than high.

Your customers will be better satisfied with a good, fair light and no breakage, rather than a very brilliant light with a constant expense for repairs. The mantles should be put on upright, and after burning off the coating use the Bunsen to clean the mantle, especially the lower part; it looks better and will last longer.

The Phillips Exeter Academy, in November, 1901, had in use 69 No. 34 Welsbach lights and 21 No. 2, making a total of 90 incandescent burners. The cost of renewals to December 1st, 1902, was $26.15, not including any labor charges. The first lights were put in May, 1899, 20 No. 34 lights; in October, 14, and in November, 8. In November, 1899, we had one charge for renewals, $.45. In October, 1900, we put in 17 more and renewed the lights already in at an expense of $6.55. We used the No. 197 mantle.

For a table or study lamp we use the No. 34, with the 8-inch glass chimney, Nos. 10 by 43 green shades. Some prefer the yellow eye shield; it gives a better light on the table and tones it.

The combination 10 by 43 can be obtained in all colors and decorations. Use the socket drake-neck, not the rubber lined, for a connection with the chandelier, and the best quality of covered tubing.

Before leaving the single burner, we will consider the "Crockery." You cannot call it anything else. The 10-inch dome in colors is suitable for a table lamp as before stated. On a chandelier it looks poorly. The 8-inch crimped is hard to clean, looks badly, and in fact is no good. The 8-inch fluted looks some better, but that is all you can say about it. We have lately seen an 8-inch of the same shape as the 10-inch dome, which is an improvement and is of some use. These comprise the ones in general use and can be improved upon.

We prefer the 8-inch glass. The mica may be used when you cannot adjust to pressure, or have a broken mantle. What looks any worse than a mica chimney with a large blister on it? The "Crown Canopy" for chimneys is all right.

It gives a good light for the amount of gas burned, and has its field of usefulness. No. 151, with stalactite globe and fluted shade, is artistic and will find a ready sale for lighting dining and reception rooms, and is very satisfactory. We suggest to the manufacturers and designers of globes and shades, for single or chandelier burners, something similar; it will give us a change.

The question is: Shall we sell the lamp, or rent it at a price per month, and with or without maintenance? Many gas companies are entering this field, and all the information it is possible to get is necessary to success. Before the modern gas arc came to our notice we manufactured one, using 4 No. 34 Welsbach lights, an alabaster globe, 12 by 8 by 4, and a Wheeler reflector, 18 inches in diameter, "especially designed," which we could retail for $10.50. Five of these were placed in a store and maintained at our expense for 1 year. Three of these lights were burned three nights per week, until 9 o'clock, and one night until 10 o'clock, and the two lights in the windows until 10 o'clock every night.

The ledger figures were:

Dr. to Lamps,
52.50 int. $5.25
Repairs, 10.23
90,200 cubic feet gas.

The gas arc now made will consume more gas for the same amount of light than the above named, because you do not use the chimney.

The crown on the top of the globe is unnecessary. It obstructs the lights, and if not removed will not permit the lowering of the reflector enough so as to have the proper effect; that is, throw the light down. The reflector is not flat enough, and in all places that I have noticed they are all too high to be of the use for which they were intended. The burners are good but the top of the Bunsen is too large. It should be of the size to take any cap mantle. The pilot light works well.

It gives a good light. We like the shape of the globe, and the shape, quality and size of the reflector are up to our ideas exactly. The innovation of being able to turn out three of the lights and use only one may add one new consumer to your list. We do not like the wrench for turning on and shutting off the light, but it is an aid when you renew the mantles. The trouble is to find it when wanted. We prefer the chain.

The beautiful and ornamental crown for the top of the globe is for day use and should be advertised as such. For illuminating purposes it is a failure, because when the lights are on, the shadow cast from this covers the whole of the reflector, and destroys its usefulness. The same error as on the Humphrey; the top of the Bunsen is large and you cannot use the cap mantle if you wish to. The burners closer together are preferable.

The lifting of the globe and shade for the renewal of mantles is all right. The adjustment of the burners is perfect, or perhaps we had better say, the best we have used. The burners are close together and will take any cap mantle on the market. We would suggest a crown canopy to be used as a smoke protector. This would do away with the unsightly ones now used on all the lights before mentioned.

Discussion.

The President—There is in the Question Box a query which we should take up with this subject. It is: "Of the gas used for lighting what percentage is used through incandescent burners?" Mr. Cooper, will you state what it is in the case of Exeter? Will any gentleman give the figures for his town or city, or an estimate?

Mr. Crafts—In connection with the Humphrey lamp, some of the members may not know that this light is now being made with an electric attachment for lighting. A pilot light is used, but the valve is thrown by electricity. It simply requires a battery. It can be used for window lighting or for high lighting in churches or other places difficult to reach.

Mr. Barnes—I would like to ask Mr. Cooper, or any other gentleman present, whether he has ever noticed or been troubled at all by odor from the gas arc light, as the product of combustion? We have one or two in use in our office, and people coming in there from out-of-doors complain frequently of an odor which they detect where these lamps are burning. It seems to be a pretty well established fact in our case that the odor which people notice is the product of imperfect combustion from the arc lights. I may be wrong in the matter, and possibly some gentleman here can set me right.

The Secretary—I should like to ask Mr. Barnes if he doesn't get the same complaint from the single lights as well. Only day before yester-

day I was held up by a man who had just put in one of our new mantle lamps, and it smelled so badly that he was dissatisfied with it.

The President—Has any member any experience as to the effect on this odor (from the Welsbach light) of preheating either the gas or the air?

Mr. Fowler—The matter of this smell has, I think, been up before us a good many times. One of our customers last fall told me that the gas was so bad that he really could not stand it and there must be a change. I went out to see him, and found that he was using a cheap form of burner—not a Welsbach—some substitute for it. In the office the air was really very bad indeed. I called it an acetylene smell. I presume it came from improper combustion of the gas. In this case he threw away all the old burners, because he found slight leaks of gas around in various places and could not fix it. He put in new burners, and after that had no trouble at all about the smell. These leaks seemed to be because the burners were not properly screwed on, or the threads were not well made. I was very much astonished to find that that was the trouble, because there was no smell of unburned gas at all, and it was evidently a very small flame right against the branch where the burner was screwed on to the chandelier.

Mr. F. W. Humphreys—Can any of the gentlemen present give us a description of a light which is being exhibited in the Stewart Building in New York, with an inverted mantle? I have heard of it, but have not been able to see it yet. They say it is very effective.

The President—Mr. Cooper, the Association is very much obliged to you for your paper.

Two Telegrams.

Mr. Barnes—Mr. President, as the committee appointed to draw up a telegram to Messrs. Slater and Lamson, I report that the message prepared is as follows:

"The New England Association of Gas Engineers, assembled at its thirty-third annual meeting, sends you its cordial greeting, its regret at your enforced absence, and its best wishes for your speedy return to good health."

On motion of Mr. Fowler, the report was accepted and the telegrams were ordered sent.

The President—We will now listen to the paper on an Electrical Disturbance in the Gas Industry, by Mr. Barnum, of Worcester.

Mr. D. D. Barnum, of Worcester, Mass., read the following paper entitled

AN ELECTRICAL DISTURBANCE IN THE GAS INDUSTRY.

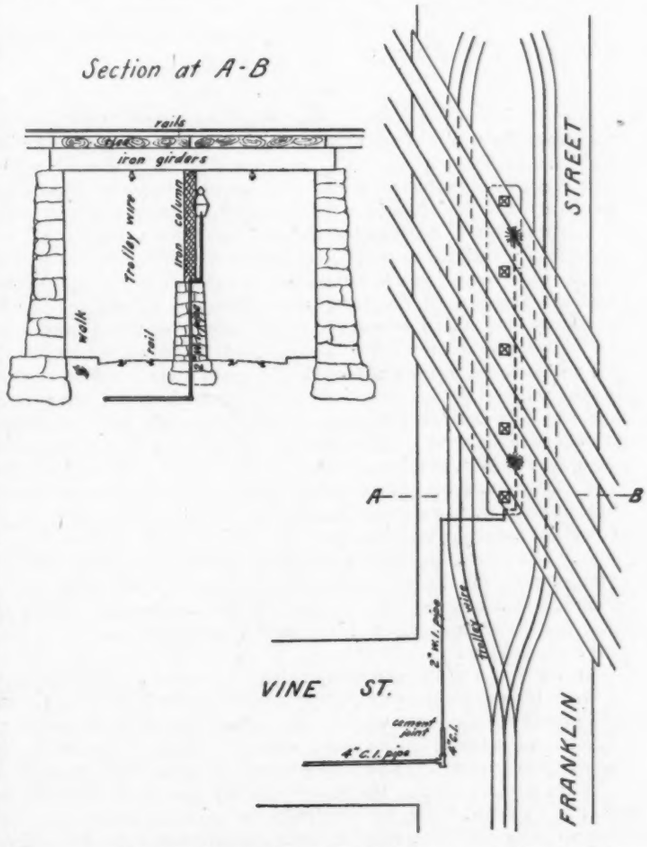
An interesting phase often occurs in the gas business when we are called upon to consider not only what has taken place, but what serious things might have happened if there had been a very slight change in some of the factors leading up to the incident.

In the city of Worcester we have experienced considerable trouble during the past few years from street leaks, due to the construction of an additional sewer system throughout the city, and a very large extension of the high pressure water service by the City Water Department; added to these disturbances, the electric light company has laid over 25 miles of underground conduit, and the telephone and telegraph companies have also laid extensive underground systems; all in the period of 4 years. It is not necessary for me to tell you the effects of all this underground work upon our pipes. And yet the most interesting leak of gas was caused by an overhead electric trolley wire.

On February, the 20th, at 10:45 P.M., the Gas Company was notified that there was a leak of gas from its pipe underneath the Franklin street railroad bridge, and that the gas from the leak had caught fire. The workmen arrived at 11:15 and found, on examination, that there was a small hole in the 2-inch, wrought iron pipe, where it eame in contact with an iron column of the bridge; the pipe was one that was laid along the top of the stone abutment of the bridge to supply some street lights. The men naturally thought it had been worn by friction, and disconnected the pipe near where it left the ground.

The next morning, while I was attending the second day's meeting of this Association, I received a telephone message from Worcester saying that a considerable section of the city was affected by escaping gas—that a number of reports had come into the office in less than two hours. I hurried back, and when I arrived I learned that my assistant had found that a majority of the complaints were due to gas coming through an electric light conduit, and that the men had begun to dig a hole near a manhole of the electric light conduit, where the smell of escaping gas appeared to be the strongest; this manhole was near the end of the Franklin street bridge. At that time I learned of the leak in the 2-inch pipe the night before. After investigating I had the men start to steam out another place, preparatory to digging, at a point over the cement joint between the 2-inch wrought iron pipe, that ran up on the bridge, and the 4-inch cast iron which supplied it.

The drawings will show the arrangement of the bridge, how the wires are strung underneath the trusses that carry the steam car rails, and how the street car rails cross above the gas pipe underground.



The cause of the accident, as I have worked it out, was this: A trolley wire hanger fastened to the bridge became loose and the live wire touched on the ironwork of the bridge truss, and the current, between 500 and 550 volts, followed the ironwork of the bridge to the 2-inch pipe, jumped the small, intervening space between the two, formed an arc between the column and the pipe and burned a hole in the pipe; this, of course, allowed the gas to escape and the electric arc ignited the gas. The current passed along the 2-inch pipe until it came to the cement joint where the 2-inch was made into the end of the 4-inch; here the current met the resistance of the cement. An arc was formed between the 2-inch wrought iron and the 4-inch cast iron, the heat of which melted out 3 feet of the wrought iron, fused the cement into glass and melted some of the cast iron. It can also be seen from the exhibit where some of the current travelled on the 2-inch, inside the cement and, jumping to the 4-inch, burned a hole in the 4-inch about 10 inches from its end. This was all done in less than 5 minutes.

The hole was dug by the men, first thawing the ground with steam. The 4-inch pipe was found open at the end and this was plugged. A 4-inch hole with 3 inches of pressure will deliver something like 5,000 cubic feet of gas per hour

The bridge, being on stone abutments, was thoroughly insulated from the ground, with the exception of the 2-inch gas pipe; the rails above, for the steam cars, were separated from the iron trusses by stringers and ties of wood, therefore, the current could not follow this path.

When the current found the 2-inch pipe it followed it until it came to the resistance of the cement joint. It jumped the cement joint to the cast iron pipe, simply because at some other point in the city there was less resistance to its getting to the street car rail than there was at this particular point. After it reached the 4-inch cast iron it had a fairly good continuous iron conductor to travel on because in a spigot and bell joint iron touches iron, while in the case of a 2-inch wrought iron made inside a 4-inch cast iron, there is over an inch of space between the two pipes.

It is hard to realize that the melting of the iron and cement all took

place in as short a time as it did, but that such was the case was proved at the street railway power house. During the evening of the report of the small leak in the 2-inch pipe, at about 10:30 o'clock, the current breaker belonging to the electric line that operated Franklin street dropped out of place, and, for a few minutes, not less than 3 and not more than 5, the switchboard tender was unable to keep it in place, after which it was all right.

The next day the street railway people repaired the broken hanger and "grounded" the bridge in a proper manner.

Discussion.

The President—Gentlemen, this paper has opened up a most important subject. I have no doubt that nearly every manager here has had some unpleasant experience due to the effect of an electric current on a wrought or cast iron gas main. Also the question of leaks is perpetually interesting. Perhaps the Secretary can begin this discussion.

The Secretary—I could say a good deal about leaks, but I think perhaps that I had better not. I do, however, recollect an electric leak, which occurred in New Bedford, somewhat similar to this. A lamp-post was reported on fire. On investigation it was found to be on fire at the top, and a leak was found in the riser after it had been taken out. The supposition was that the pipe had rusted out, but on examining the riser afterwards a hole about the size of a pea was found burned through the pipe, and no other mark appeared on it. The question came up how that hole got there. The position of the hole was perhaps 3 feet above the surface of the ground inside the cast iron pipe. Investigation, however, developed that the trolley guard wire at that point had broken, and coming down the end of it had apparently swung against the post, as a closer investigation showed a slight burn on the outside of the post, just about opposite where this hole was found in the riser. The current evidently during that contact of the wire with the post jumped from the post to the riser and burned a hole through. It seemed a little strange that the current should not have gone down the post into the ground rather than jumping across and taking the riser, but such was the fact.

Mr. Nute—An experience we had about a week or ten days ago from a fire in the cellar of a grocery store is rather interesting. It is the second case of the kind this winter. The grocer had been using electric lights perhaps two or three years ago, and had been using gas for the last couple of years. The switchboard was left there, but the lights had been entirely taken out. I suppose the switch was off at that point, but we had the switchboard, unfortunately for us, right beside the meter, and we got a fire there, which without any question from the evidence was caused by the burning out of the switchboard. The meter was burned up. In the other case the switchboard was so far away from the meter there was no gas fire, but the switchboard was as thoroughly burned out in the first case as it was in the second one.

On motion of the Secretary, a vote of thanks was passed to Mr. Barnum for his paper.

ANOTHER DIP INTO THE QUESTION BOX.

The President—In connection with what we have been discussing this afternoon, we might consider another question on the list. It is:

> "What is the experience of members in maintenance of incandescent gas lights for a fixed price per month?"

Mr. Cooper made some statements showing what a large revenue can be had with a proper installation. What is the cost of maintenance of incandescent lights? Is there any manager of a company here that does this habitually?

Mr. F. W. Humphreys—In New Haven we maintain lamps on that plan. We sell the lamps outright, or we rent them to the consumer charging a rental which rather tends to make him desire to buy the lights. The rental is 50 cents per lamp per month for 9 months of the year. We don't send him any bill for the months of July, August, or September. When we sell the light we charge $10 for the 4-light Humphrey. We maintain them for 25 cents per lamp per month, charging only 9 months of the year, omitting the charge in the summer time when they are not using their lights much, and when on very slight provocation they might throw the lights out. Without very much canvassing on the maintenance, or with practically none, we have been able to secure one-half of the number of lights which we have placed at the rate of 25 cents per lamp per month. We clean them for that twice a month, furnish whatever mantles are broken, and keep them up in good shape. The arrangement is very satisfactory to the consumers. I believe that with a small amount of canvassing we could reach a point where we could have on maintenance at that rate about three-quarters of the lamps that we have in the city. We have out at the present time over 800 lamps, which are sold at $10 or $9, according to the size of the light, and we have on rental only 70. I do not consider the rental proposition at all attractive, where the lamp can be sold. I believe that the lamp might better be sold at a lower price and maintenance carried on rather than rent it. The likelihood of some leap which might be an improvement coming along would leave a stock of junk on the gas company's hand, which would be something equivalent to the Lungren light in the past.

Mr. Woodward—Does the 25 cents cover the cost?

Mr. F. W. Humphreys—No; the 25 cents does not cover the cost of cleaning twice a month and mantles. The cost is about 35 cents; but the loss is money well spent, we think.

The President—Mr. Gould, can you give us figures with respect to the maintenance of the burners in Boston?

Mr. Gould—We are not doing anything in supplying and maintaining mantles. We have not gone into that at all, but have been looking for a good outside, gas arc light.

Mr. Crafts—We have a small maintenance system; that is, where we have a store or place of business and the burners are working poorly because they are using cheap mantles, and we cannot get them to use good mantles, we try and get them on a maintenance system. The expense varies very materially according to each proposition, and my experience has been that it will vary from 39 cents to something over $1 per burner per year. We have for about 5 years maintained the lights on public buildings, and on perhaps 300 burners the cost has been about 40 cents per burner per year.

The Secretary—I will admit I put this question in the box myself. I was personally interested in it. It seems to me that where a gas company is in business by itself it would be for many reasons desirable that it should, if possible, control the manipulation of the incandescent burners, especially in the stores. I suppose all of you have looked into places lighted up by gas, both incandescent and ordinary burners, and saw conditions enough to discourage anybody in the use of gas as a lighting agent; but if you tell these people that their burners are poor, that they need new mantles or new burners, the chances are you will be suspected of wanting to sell new burners, or to cover up something in the quality of your gas or of your service of gas which you don't like to have appear. I have repeatedly been ashamed of the appearance of the gas for the making of which I was responsible, when it was no fault of mine that the customer was not getting good light; but when the light is bad the gas is bad, as far as the customer thinks, no matter what he might know if he looked into it. It seems to me that even if, as Mr. Humphreys has said, the work was done for less than it actually costs, it might be a case where a loss was a good gain. I had hoped to have found a little more about the cost and the amount of this work that was being done. In this connection I might say I had a sample of mantles sent me guaranteed for 3 months, and as an inducement to buy them it was held out that the maintaining of incandescent lamps was now a very general feature of the gas business, and that if we used these mantles guaranteed for 3 months, why during that 3 months the cost of replacing mantles would be very small.

The President—I think the Gas Appliance Exchange in Boston charges about 24 cents per week per lamp for maintenance. That is about $1 a month, $12 a year, for everything in the arc light or cluster light. The Secretary devises questions that get answers. Mr. Humphrey's reply was a consideration that is not generally accorded to the Question Box. Another question is:

> "What are the proper temperatures at which to operate the various parts of a coal gas plant?"

Will any one undertake to schedule the temperatures at which such a plant should be operated? Can any of the members give references to articles that discuss this question?

The Secretary—I think, with reference to the temperature at which purifying boxes should be operated, our records will show information given by our present President in regard to that matter. I cannot now refer to the date. In regard to the condensers, I would say that the works which I now have charge of have a long stretch of foul main, which is more or less exposed to the influence of the outside temperature, although the main is not out-of-doors, and during the past winter, or the winter which is not past to-day, I think without exception on every one of these cold snaps that we have had our candle power has dropped with apparently no other cause than the freezing or the loss probable in this foul main and condensers. I have put a jacket on it now, and hope during this cold snap it will hold up better.

Mr. Fowler—I am perfectly willing to tell how I am running the works that I have charge of. The machinery between the foul main

and the purifying boxes consists of the exhausters, a Walker tar extractors—three stories—a condenser, which is in use with air only, and a standard scrubber. The gas enters the exhausters at a temperature of about 100°, ordinarily. It is between 94° or 104°. I don't test the temperature again until it comes out of the condenser, at which place it is from 76° to 84°. The gas remains then in that same warm room and is carried underground to the purifying house. In the purifying house the cellar is kept very warm, one single steam pipe running round under each of the four boxes, so that the gas in the boxes is kept warm; but the exact temperature I have no means of knowing. The gas is not ordinarily cooled below between 75° and 80° until it gets into the holder.

The Secretary—I would like to ask Mr. Fowler if he makes any attempt to keep the first box in his series of purifiers warmer than the succeeding boxes.

Mr. Fowler—No attempt at all.

Mr. J. J. Humphreys, Jr.—I think Mr. Barnum is not hunting for trouble, but if we asked him he could tell us exactly the percentage difference in the efficiency of the purifiers with lower and higher temperatures.

Mr. Barnum—I don't think I can give that exactly, because we are running two sets of purifiers in parallel, and it is hard to tell, on account of the varying back pressure in the two series, how much goes through each set. We run the temperature over 80° in our boxes, but don't let it get over 100°. Our oxide will take out about 8 per cent. of its own weight of free sulphur each time it is used; in 6 or 7 times that would give about 50 per cent., which uses up the oxide. We purify, I think, about 20,000 to the bushel in that time, which will make it about 150,000 to the bushel before it is sold.

Mr. J. J. Humphreys, Jr.—Will Mr. Barnum give the previous number of grains per use of each batch of oxide to compare with the present number of grains of sulphur removed?

Mr. Barnum—Well, that is rather a difficult thing to give. In mixing coal and water gas, as we do, the mixtures will vary, of course, at different times of day, and if you count on 200 grains in 100 feet of water gas and 400 grains more or less in coal gas, that will give you about 300 to 400 grains to 100 feet entering the purifiers. Running the 3 boxes as we do with 1 off box, at the outlet of the first box you will have about 150 to 200 grains, and at the outlet of the second box you will have less than 20. There are ways for determining the sulphuretted hydrogen, but it cannot be determined with rapidity within 20 grains. I cannot give the proportion it was before when the temperature was low.

Mr. Coggeshall—We manufacture strictly coal gas. In our system of condensation we run a pipe round the retort house once and a-half from the outlet of the hydranlic main to the outlet of the building. We run it across the street (which is about 40 feet) boxed up to the exhauster room. At the exhauster room the pipe entering the exhauster is 120°, say, at this time of year. After passing through the exhauster it goes through the tubular condenser and the water is reduced to about 75°. Then it goes through the scrubber and tar extractor, where it accumulates about 3°, so it is about 78° on leaving the scrubber. From there it goes to the purifiers. The temperature at the purifiers, of course, I don't know.

The President—Mr. McGregor, will you give us your schedule of temperature?

Mr. McGregor—Well, it has not differed very much from what the other gentlemen have given.

Mr. Hintze—In Lowell the exhauster is placed after the condensers. The gas is pulled through the condensers and the tar extractor before it gets to the exhauster. One condenser is used as a sort of an air condenser. It enters at about 120° and drops about 10° through that. It then goes into the tar extractor, and from there through the multitubular condensers before it reaches the exhausters. At the outlet of the last condenser we aim to keep it at 70°. What it is beyond that I have no means of knowing; rather, I have means of knowing, but I have not the figures at hand.

The President—Mr. Allyn, can you give us the practice at Cambridge.

Mr. Allyn—I wish I could, Mr. President, but the chaotic state in which our works has been for the last year prevents it.

The President—A gentleman who has just come into the room will furnish us with information on this point in detail. Mr. Learned, will you kindly state for the benefit of the members the proper temperatures at which to operate the various parts of a coal gas plant?

Mr. W. A. Learned—Give it up.

The Secretary—Mr. President, I would like to move as an amendment to his reply that he give the temperature at which he operates his.

The President—That is what has been done, Mr. Learned. The members have been giving the temperatures that they observe in their own works. Will you kindly contribute your observations of temperatures in your works, from the retorts to the station meter?

Mr. W. A. Learned—I will try to.

The President—The order of the gas and the temperatures.

Mr. W. A. Learned—At the hydraulic main about 135°; at the air condenser 115°.

The President—Are these inlets or outlets?

Mr. W. A. Learned—Inlets. Then comes the exhauster, then a water cooler. At that water cooler the inlet temperature would be about 90°. Then comes the washer, and that would be about 75°; then the standard scrubber, 68° or 70°. After the standard scrubber, we increase the temperature of the gas through a heater, on the inlet pipe of the purifier. That 100° would be in the first box. In the second box there would be a gradual decrease, until just at this present time at the station meter it is somewhere in the neighborhood of 70°.

The President—Thank you, Mr. Learned. I think we are getting capital information out of this.

Mr. Allyn—May I ask Mr. Learned, in connection with that, if he puts his gas into his holder at 70 , whether it does not show a large depreciation at this season of the year?

Mr. W. A. Learned—At the station meter it is about, I think, at the present time 70°. And the station meter under that condition would be 2 per cent. fast—that is, 1 per cent. for every 5°.

Mr. McGregor—I might be a little more exact by stating, Mr. President, that the gas from the hydraulic we find varies from 120° to 135°, due to the foul main passing around and through a room which is more or less exposed to the outside temperature, but it enters into the primary air condenser at 120°, passing through the exhauster into the P. & A. no lower than 110°, as we get our best results from our P. & A. tar extractor at that point Then it enters the secondary air condenser at 100°, and from there we have a regular drop of about 10°, then to our water tube condenser, 90°, into our rotary scrubber, 80°, and splasher-washer at 70°. It leaves the condensing room at a temperature of 65°, and after going through the purifiers, which are rather crowded at present, we have at the outlet of the station meter from 65° to 68°.

Mr. Sherman—Our gas enters the exhausters at 132°. It passes through the multitubular condensers and standard scrubber, and arrives at the purifiers at 75°. We keep the purifying house heated up to 70° and 72° all the time. And here I would like to impress upon the members what I have stated before here several times, that the secret of using oxide successfully is to keep the room warm, and to keep the oxide warm, as it is practicable to do. At the station meter, which is several hundred feet away from the purifying house, we register the gas most of the time at 70°, and, of course, when we make up the accounts that is corrected to bring it down to the normal temperature of 60°.

Mr. Barnum—I would like to have you ask how many of the companies correct their station meter readings to 60° at any given period in the year?

The President—Will those who do this be kind enough to raise their hands? Will those who do not make any such correction at any time of the year raise their hands? They seem to be in the majority greatly—2 to 1.

[To be Continued.]

Address of the President (Mr. Charles Woodward Andrews, of Hamilton, O.), of the Ohio Gas Light Association, on the Occasion of the Nineteenth Annual Meeting, Cincinnati, March 18 to 20.

The past year has been one of unparalleled expansion in the output of the gas companies in this country. This is due to several causes, among them being an awakening, begun several years ago, to the fact that the price of gas must be reduced to what then seemed an almost impossible figure. This has led to the pushing of the sales of gas, especially for gas cooking stoves, until at present the field has come to be one in which a great many companies have about settled down to a normal increase.

The introduction of the gas arc has again placed within our reach the immense store lighting business we lost when the electric arc succeeded the open flame, Siemens-Lungren, and the earlier types of Welsbach lamps.

I believe that with judicious selection of customers we can afford to install these lamps and maintain them in good order, charging the customer only the regular counter price for mantles and chimneys. In

this way we place our service on a parity with that furnished by the electric companies, and the saving in cost will then give us this large and attractive business.

The time will shortly arrive, if it is not already here, when we will no longer have any reason for differential rates between lighting and cooking in the majority of our cities; because it has been thoroughly demonstrated that gas at $1 to $1.25 per 1,000 is cheaper than any other fuel for cooking, and the use of gas for this purpose has entirely passed the introductory stage.

The field which now offers the greatest possibility in the way of new business is that of domestic heating. You will note in looking over the programme that this field has been given a very prominent place, and I hope the discussion which will follow the papers will bring this fact home to all of you.

The natural gas companies have for years catered to this field, gradually increasing the price of gas, until 50 cents per 1,000 will, in a short time, be a common price.

The shortage of fuel this winter has brought to many of us an immense increase in the use of gas for this purpose, and we could have sold much more if we had had a lower price for heating gas. I believe that we should adopt two prices, one for lighting and cooking, the other for heating, the heating price to be governed by local conditions.

In manufacturing there has been no special development during the past year. The by-product coke ovens have proven that they can furnish a satisfactory quality of gas, and, where other conditions are right, can be used to advantage by fairly large companies.

One of our papers deals with the subject of benches, their construction and operation, and will prove very instructive.

In water gas apparatus there has been a very decided tendency toward the use of larger sizes, thus showing the drift of this business.

The use of cement increases, and concrete purifiers have become of more interest, and will become more common as their cheapness of construction is better known.

In distribution, the high pressure lines are doing all that was expected of them. The tendency of the older companies is toward the use of high pressure feeders and district regulators. This results in a very flexible system and keeps down the investment remarkably.

Our Wrinkle and Novelty Advertising Departments, under the Editorship of Messrs. Eysenbach and Perkins respectively, continue to be of great assistance in bringing to the attention of the members new ideas and methods.

We have added two new departments: A Question-Box and Department of Progress. The first, under the Editorship of Mr. Henry L. Doherty, might be termed "A Catechism of Gas Practice," consisting as it does of a list of over 600 carefully selected questions, with answers by those competent to deal with them. The Department of Progress, under the Editorship of Mr. Irvin Butterworth, is intended to review all new methods, etc., which may from time to time appear in American and foreign journals. It is usually attempted to cover this ground in your President's address, but it cannot be done as satisfactorily as is desirable on account of the other matters demanding space.

As directed at the last meeting of the Association, the Secretary took a mail ballot on the question of increase of dues to $4 per annum. It was carried by an almost unanimous vote, and the way is now clear for the publication of the Proceedings of our Association.

During the past year death has removed from our midst two of our members. Mr. E. H. Jenkins, President of the San Antonio Gas and Electric Company, of San Antonio, Tex., joined the Association, March 18th, 1896. His death occurred June 23, 1902. Mr. Jenkins took great interest in this Association, and was ever ready to give it his valuable assistance. He most successfully served as President of the Association at the Springfield meeting, in 1899. We bow our heads in sorrow, knowing that never again shall we receive the cordial greeting or the hearty clasp of the hand from our friend and brother.

Mr. S. Milo Dole, Manager of the Adrian Gas Company, of Adrian, Mich., joined the Association March 19th, 1902. His death occurred September 24, 1902. He was unknown to most of us, as he never affiliated by attendance with the Association; but as a man is judged by the esteem of his neighbors, the report from his home justifies us in expressing our deep sorrow at his death.

In conclusion I wish to express my appreciation of the great assistance rendered me by your Secretary, Mr. T. C. Jones.

THE Elizabeth City Gas Company, to supply gas to the residents of Elizabeth City, N. C., has been incorporated. It is capitalized in $75,000.

Rules for the Gas Supply, Louisiana Purchase Exposition, 1904.

The following rules respecting the gas supply at the World's Fair, to be held in St. Louis next year, are from the governing regulations, prepared by Mr. Isaac S. Taylor, Director of Works, to guide contractors:

1. All drawings, plans and specifications for gas service on the grounds of the exposition must be submitted to the director of works for his approval before any connection can be made. All work shall be done under the direction of the director of works.

2. The exposition will install on the grounds a system of gas mains.

3. All State, Government, exhibit and other buildings and structures must install such gas fixtures as required by the director of the works, and must connect same to the nearest main constructed by the exposition.

4. Any person or persons desiring to connect with the gas pipes in the grounds of the exposition shall make application for privilege of connection; and shall deposit, in cash, the amount charged for each connection.

5. The following price will be charged by the exposition for the privilege of connecting: Connection to gas mains, $5, and this amount, in cash, must accompany each application.

6. Application for each connection must be in writing, upon a blank form furnished by the exposition. The application shall state the location of the premises, the service for which connection is wanted, and such other information as required, and must be signed by the party wanting the service.

7. No gasfitter shall be allowed to do work on the grounds of the exposition without first filing bond with the director of the works, conditioned upon the faithful performance and execution of the work, and holding the Louisiana Purchase Exposition Company harmless and free from all damages of any nature. The bond to be further conditioned upon the observance of all rules and regulations of the company and any laws or ordinances that may apply to the work. Said bond must be acceptable to the director of works.

8. The contractor must insure against accidents to the men employed by or under him, and against accidents to the public during the continuance of the work; the policies of said insurance must be deposited with the exposition, and must be in such company or companies, and for such amounts, as shall be approved by the director of works.

9. No gasfitter shall be allowed to put in work or make repairs on the grounds of the exposition without first obtaining a special permit and depositing the amount required for inspection. A schedule of charges for permits can be obtained on application to the engineer in charge.

10. The exposition reserves the right to shut off gas for non-payment of bills and for necessary repairs, and in case of fire; and to prescribe and limit the size of pipe and the hours for use of gas.

11. No person or persons, except firemen and authorized inspectors of this division, shall interfere with or operate pipes or fixtures connected with the gas system, without a permit signed by the director of works or his authorized agent. The permit must be shown upon request of the exposition.

12. A charge of 25 cents per opening will be charged for inspection.

13. Plans must be submitted, showing the location of stoves, boilers, engines, furnaces and all other appliances requiring gas, and all such machinery so set, or any machinery required to operate same by the use of gas, must be constructed as directed by the director of works; and proper precautions must be taken to prevent fire or other damage arising from the use of the above fixtures.

14. The Exposition Company will not be responsible for any accidents or fires that may be caused by the use of gas; the parties making application for gas connection must agree to hold the Exposition Company entirely harmless; said parties to pay for any and all damages that may occur or arise from the use of said gas.

15. All gas used must be metered and must be paid for at the following rate:

Illuminating and fuel gas, $1.20 per 1,000 cubic feet.

All meters must be supplied and erected by the parties using the gas.

16. A deposit must be made monthly, in advance, to cover the cost of a 30-day supply of gas. The Exposition Company, or the gas company, will estimate the approximate amount of gas to be used during said 30 days; and upon this estimate the amount of said deposit will be based.

17. The following table shows the proportional size and length of pipe necessary for a proper flow of gas:

Size of Pipe.	Greatest Length Allowed.	Greatest Number of Lights.
⅜-inch	20 feet	2
½-inch	30 "	3
¾-inch	50 "	10
1-inch	70 "	15
1¼-inch	100 "	30
1½-inch	150 "	60
2-inch	200 "	100
2½-inch	300 "	200
3-inch	450 "	390

If the above length is exceeded, the next largest size of pipe must be used.

18. No ¼-inch pipe will be accepted.

19. No riser shall be less than 1 inch.

20. All risers must be carried up an inside partition out of reach of frost, and shall be brought to the front of the building, and shall end at a sufficient height above the floor to accommodate a suitable size meter; care being taken to select a location for the meter that is not damp, or where it will be subject to injury.

21. Joists supporting run of pipe must not be notched at a greater distance than 2 feet from support.

22. No concealed screw thread joints will be allowed where fixtures are to be attached; and connections with laterals for drop fixtures must be made at side of lateral, with pipe bent at right angles, and pipe must extend ½ inch below lath work.

23. Drops and side openings must be properly and securely fastened by gas hooks or wall fittings and screws.

24. In all cases where extensions are made, care should be taken to break pipe where the rule for sizes can be kept; and in no case shall extensions be made from small pipe. When additions are made, and the pipes nearby are not sufficiently large, a special line must be run to the meter.

25. All openings to be closed with iron caps. No split pipes or broken fittings repaired with cement or lead will be approved.

26. Gas pipes should be kept clear of steam and water pipes.

27. All pipes, before being concealed, shall be examined and tested under pressure by the inspector, and he will require the installation to withstand a pressure equal to at least 10 inches of mercury for at least one-half hour; and a second test equal to the above will be required after the plastering is done. Certificate of inspection of pipe work will be issued only after the second test.

28. The final test for pressure will be made after the fixtures are placed, and a fixture certificate will be issued.

29. Gas must not be turned into any building until the final certificate of the St. Louis Fire Prevention Bureau has been issued.

30. Exhibitors desiring to contract for service of gas must make application to the chief of the department in which their exhibits are installed. No application for service will be entertained unless made upon a blank furnished by the director of works, which may be obtained from the chief of a department, and when an application for service has been approved by the director of exhibits the contract will be executed on the part of the Louisiana Purchase Exposition Company, by the director of works, on the terms and conditions that will be stated in each case. The director of works and the director of exhibits, in their discretion, are authorized to furnish gratuitously to exhibitors a limited amount of gas for the operation of machines and processes. The character of the exhibit requiring gas for its operation will have much to do with determining the amount of gas that will be furnished gratuitously.

31. The above rules may be changed at the discretion of the Exposition Company.

The Demand for Coke.

By Mr. F. E. Saward, in *Iron Age*.

No trade in this country has shown so great an impetus within the past year or two as that of coke for metallurgical purposes. The tonnage is growing, but it hardly keeps pace with the use thereof, hence the following facts may be of interest as showing what has been and can be done.

The production of coke in Alabama in the year 1902 amounted to 2,232,326 tons, against 2,180,625 tons for the year 1901. While an increase of only 51,701 tons is shown, it must be admitted that this is a good showing in the face of the fact that large receipts were had from other sources and there was such a strong demand for coal that no effort was made to increase the production of coke. The estimate is made that during the year 1903 the output will be increased by 250,000 tons. No less than 500 new coke ovens will be put in operation during the next 90 days, and these will add to the total output. The old ovens are to be worked to their fullest capacity, thus enabling home production to offset the necessity for importations of this class of fuel. One of the latest items in this connection is that Atlanta capitalists have purchased a tract of land at Gadsden, Ala., and formed a corporation with a capital stock of $100,000, under the name of the Big Brushy Coal and Coke Company. Mines will be opened near Littleton, Ala. A large coking plant will be built and coke will be manufactured.

The Maryland Steel Company at their plant near Sparrow's Point, Md., will have 400 by-product ovens when work now underway is completed, say in about 90 days; the first battery of 50 has been completed, and the output is 300 tons of coke daily, which will be used in and about the works for fuel; the plant comprises the most modern appliances of every description for economical handling of the coal and coke. The possession of this coke plant will enable the Maryland Steel Company to manufacture their own coke, securing economies not only in the mere process of coke making, but by saving the by-products.

The coke output of the Connellsville district for 1902 aggregated 14,138,740 tons. This output is about the same as the year before, but was greatly restricted by lack of railroad equipment. Nearly 2,000 additional ovens are to be built and the 1903 production will show a great increase. The tonnage from this district is now running at the rate of 250,000 tons a week, and would be greater but for insufficient car supply. Advices are that the Weaver Coal and Coke Company have taken out a sheaf of charters and comtemplate the creation of a number of towns with civic utility enterprises in Indiana and adjoining counties, including coke ovens and adjuncts, and this will add to the supply from the Allegheny section. By the way, there have been figures much above normal recently quoted for coke made in the Connellsville district; one operator is said to have sold all his supply up to July 1 to a furnace in the Mahoning Valley at $7 a ton; this is a very high figure, and no such value can be expected to continue after the numerous ovens now building in various parts of the country are completed, yet one can hardly look for any $3 coke for some months to come.

The Connellsville Central Coke Company owns a large body of coking land in Fayette county, in the lower Connellsville region. They also have in operation 200 coke ovens and have decided to build 150 more during the early portion of this year, making 350 ovens in the plant. With these it is believed that 500,000 tons of coke annually will be made for the market. This Company are one of the many new corporations hurrying into the coke trade since the retirement of the H. C. Frick Coke Company from the open market,

The Wabash extension will develop coal lands in Green county, Pennsylvania. The engineering corps are working toward Waynesburg from the river, making the last survey. Just how soon this work will be commenced in point of construction is not known. It is stated that coal developments, the erection of coke plants, etc., will soon follow the Wabash building into Green county.

An important development by Pittsburg parties is of a tract of 4,600 acres in Barbour county, West Virginia, on the line of the Baltimore & Ohio Railroad. The Company are making arrangements for the immediate development of the property, and have submitted plans for the construction of mine cars, electric haulage and steel tipples to a Pittsburg mine equipment firm. The new Company are known as the Pennsylvania, Cleveland and West Virginia Coal Company. Another interesting transaction is that by which Berthold Floersheim of Pittsburg turned over to a company known as the Hampton Coal and Coke Company, comprising Pittsburg and Eastern men of capital, the tract of land recently gathered together by him in Upshur county, West Virginia. It contains four workable veins, the Masontown, "Big Eleven," and the upper and lower Kittanning seams. The coal and coke made from the coal are of a superior quality. The Wabash, the Baltimore & Ohio and other coal roads making important extensions through Upshur county will give facilities for competing transportation which will be unequaled.

The Sheffield Coal and Iron Company, of Sheffield, Ala., have now secured a supply of coke for their own account from the coke plant of the Stone Gap Colliery Company, who have just completed a portion of their ovens at Glamorgan, Wise county, Va. This is a practical and another evidence of the necessity that the iron industries of the country secure, at first hands, a full and regular supply of coke. Don H. Bacon, Chairman of the Tennessee Coal, Iron & Railroad Company, in the just-issued annual report of that Company, says in regard to the coke supply for company uses, that competent men are giving careful attention to the production of coke, with the result that the percentage of yield has increased, the quality improved and the quantity con-

sumed per ton of pig iron made has been lessened. The by-product ovens at Everett, Mass., are doing a great business. There has been a heavy call for coke, owing to the drop in prices from $8 to $7 a ton on this fuel for domestic purposes, and the New England Gas and Coke Company have been taxed to their utmost to make deliveries as agreed. Heavy calls come from the suburban towns and cities for this fuel, where the price of anthracite still remains at $9 and $10 a ton. This enterprise, founded by Henry M. Whitney, in his efforts to make use of the Nova Scotia coal property in which he had large investments, has proved to be of the greatest benefit to certain portions of New England. Upward of 2,000 tons of Nova Scotia slack has been carbonized daily, with a resulting 1,200 tons of coke from 300 ovens.

As compared with our Connellsville district, it is interesting to note that the great coke making district in England, that of Durham, turned out only 4,701,437 gross tons last year from 12,571 ovens. Surely this does not compare favorably with work on this side of the water. At the close of the year 3,692 ovens were unemployed.

RECENT PATENTS OF INTEREST TO GAS MEN.

[Prepared for the JOURNAL *by* MR. ROYAL E. BURNHAM, *Solicitor of Patents and Counselor in Patent Causes, 833 Bond Building, Washington, D. C.*

Gas Burner.—Patent No. 722,226.—Carl F. Glocker, Albany, N. Y.

Gas Lamp.—Patent No. 722,306.—Alfred H. Humphrey, Kalamazoo, Mich.

Gas Meters.—Patents Nos. 722,389 and 722,390.—Henry H. Sprague, Bridgeport, Conn.

Gas Range.—Patent No. 722,414.—George A. Simpson, Pittsburg, Pa., assignor of one-fourth to Wilbur A. Kessler, same place.

Gas Regulating Valve, Automatic.—Patent No. 722,302.—Clarence M. Holley and Milton H. Rix, Ann Arbor, Mich., assignors to Holley Heat Regulator Company, Detroit, Mich.

Vapor Burner.—Patent 722,430.—Willis Mitchell, Boston, Mass.

Vapor Burning Lamp.—Patent No. 722,601.—Willis Mitchell, Boston, Mass., assignor to Mitchell Gas Generator and Burner Company, same place.

Gas Cooler.—Patent 723,003.—Edwin A. Moore, Philadelphia, Pa.

Gas Engine.—Patent 722,787.—George Westinghouse and Edwin Rudd, Pittsburg, Pa., assignors to the Westinghouse Machine Company.

Gas Engine.—Patent No. 722,621.—Leopold F. Burger, Anderson, Ind., assignor to Wooley Foundry and Machine Works, same place.

Gas Engine, Valve for.—Patent No. 722,672.—Leopold F. Burger, Anderson, Ind., assignor to Woolley Foundry and Machine Works, same place.

Gasholder.—Patent No. 722,834.—John Green, St. Louis. Mo., assignor, by mesne assignments, to National Light, Heat and Power Company, same place.

Gas Producer—Patent No. 723,224.—F. W. Matthiessen, La Salle, Ills.

Gas Regulator.—Patent No. 722,876.—Carl L. Nelson, Seattle, Wash.

Glowers for Electric Lamps; Sorting Device for.—Patent No. 722,790.—Alexander J. Wurts, Pittsburg, Pa., assignor to George Westinghouse, same place.

Glowers for Electric Lamps; Method of Treating.—Patent No. 722,701.—Marshall W. Hanks, Pittsburg, Pa., assignor to George Westinghouse, same place.

Glowers for Electric Lamps; Method of Making.—Patent No. 782,702.—Marshall W. Hanks, Pittsburg, Pa., assignor to George Westinghouse, same place.

ITEMS OF INTEREST FROM VARIOUS LOCALITIES.

THE Manila Railways and Light Company has filed articles of incorporation with the Secretary of State of New Jersey. The named purposes of the concern are to construct and establish and operate gas and electric lighting plants and street railways in Manila, P. I. The capital stock is $1,000,000, and the Directors are: F. H. Buhl, P. L. Kimberly, Chas. M. Swift, J. G. White, Geo. C. Smith, H. J. Conant and A. C. Wall.

ON the 16th inst. the shareholders in the Western Gas Company, of New York, voted to dissolve the corporation. The Company owned control in the Western Gas Company, of Milwaukee, and it is more than likely that the American Light and Traction Company had control in the dissolved corporation. In fact, the Company was one of those odd affairs which seem to be necessary to the proper "financing" or "refinancing" of many of the McMillin brands of gas concerns.

SUPERINTENDENT J. H. CARDALL, of the Huntsville (Ala.) Gas Company, has at last received the apparatus for the new plant at that point—it was ordered last August. He hopes to have the same put together and in working order by May 1st.

AT the annual meeting of the Gettysburg (Pa.) Gas Company the Directors elected were: Charles S. Duncan, D. P. McPherson, W. W. Haler, J. B. McPherson, A. B. Duncan, S. A. Hammond and John M. Stevenson; President, Chas. S. Duncan.

MR. EWALD HAASE, Assistant Secretary of the Milwaukee Gas Light Company, has resigned that position, to accept the post of Secretary to the Laclede Gas Light Company, of St. Louis, Mo. This would seem to indicate that the new owners of the Laclede Company have determined to dispense with the services of Mr. Alexander Ross, which would, to say the least, have the appearance of a mistake.

AT the annual meeting of the shareholders in the Westchester (N.Y.) Lighting Company the Directors chosen were: W. W. Scrugham, Randal Morgan, W. F. Sheehan, R. A. C. Smith, A. M. Young, H. G. Runkle, Walton Clark, Lewis Lillie, Harold Brown, C. H. Werner and George S. Philler.

PLANS have been completed for the construction of a complete new plant for the Lansing (Mich.) Gas Company. The site chosen is in the northern part of the city, construction work will be begun this summer, and the plant will be up to the supplying of the needs of 75,000 people.

THE authorities of Pennsylvania have issued a charter to the projectors of the Marysville Illuminating Gas Company, which concern is capitalized in $50,000. The Directors are: Frank P. Snodgrass, George Nauman, A. A. Clark, John T. Brady and R. C. Neal, Jr.

THE Northern California Power Company has purchased all the properties of the Red Bluff (Cal.) Electric Light and Gas Company. It is likely that the new owners will retain Mr. Charles Hughes as local manager.

THE Consolidated Gas and Light Company, of Tiffin, O., has mortgaged its property in the sum of $125,000. The Security Trust Company, of Toledo, is Trustee.

CAPT. W. H. WHITE has been awarded a contract, for installation on the plant of the New Bedford (Mass.) Gas and Edison Light Company of three purifying boxes, of the duplex, deep type, to be operated under the Chollar system of reversal of gas flow. The boxes are to have a capacity of 1,000,000 cubic feet per diem, and will be furnished by the Western Gas Construction Company.

A CORRESPONDENT in Freeport, Ills., forwards the following, under date of the 12th inst.: "At a meeting of the directors of the Freeport Gas Light and Coke Company, held yesterday afternoon, it was decided to reduce the price of gas to consumers from $1.35 per 1,000 to $1.25, the new rate to take effect on the April consumption. A further reduction of 10 cents for prompt payment was agreed to, which makes the net price $1.15 per 1,000. The Gas Company is a Freeport institution, and its stockholders are among the best-known men in the city. Last fall, when a shortage of coal occurred, the Company received several offers to dispose of all the coke that could be produced at a price far exceeding what was charged to Freeporters. The Directors not only decided not to take advantage of the outside offers, but the old price was continued to consumers. It is the only concern in this section of the country that did not raise the price of coke. The Company will expend a large amount of money in making extensions this yéar, especially in East Freeport, where a large force of men will be employed in doing the work."

A CORRESPONDENT in Middletown, N. Y., forwards the following under date of the 17th inst.: "In the office of the Orange County Gas and Electric Company, of Middletown, N. Y., is a section of gas pipe, about 3 feet in length, which affords a most interesting example of the effects of electrolysis. The section was dug up in Low avenue, at a point nearly opposite the Ontario and Western Railroad station. The

center of the section (it is of 4-inch pipe) is held together by a coating of the clay in which the pipe was laid, and which by electric action is so welded to the pipe that it is really a part of it. At one end of this skeleton of a pipe—for that is all it is—nearly three-fourths of the original structure is entirely missing and that which is left is as thin as an egg shell. At the other end perhaps half the shape of the original pipe remains, and that which is there left is a trifle thicker than at the end first described. The pipe in question was the 'dead end' of a gas main. Superintendent Max, of the Orange County Company, proposes this summer to thoroughly overhaul its main system, with a view to correcting as far as possible the damages that may be charged to future electrolytic action."

THE resolution empowering the New Haven (Conn.) Gas Light Company to increase its capital stock from $2,000,000 to $5,000,000 has received the sanction of the Connecticut House of Representatives. The only opposition to the measure was voiced by Representative Donovan, of Norwalk, who insisted that the resolution was not accompanied by restrictions detailing how, when and for what purpose the shares might from time to time be actually issued.

THE annual meeting of the Hudson County (N. J.) Gas Company, which was attended by shareholders representing a large majority of the total holdings, resulted in the election of the following officers: Directors, E. F. C. Young, Cornelius Zabriskie, Hamilton Wallis, J. E. Hulshizer, Thos. H. Williams, Joseph D. Bedle, Randal Morgan, A. P. Hexamer, W. C. Heppenheimer, Elbert Rappleye, H. B. Dod, Myles Tierney, P. F. Wanzer, E. L. Young and Mark T. Cox; President, E. F. C. Young; Vice-President, Walton Clark; Secretary, P. S. Young; Treasurer, Lewis Lillie; Assistant Secretary, R. D. Miller. According to the annual reports the sales of gas for the year showed an increase of 21 90 per cent. over those reported in the last twelvemonth. The meters in service show an increase over the previous year of 6,824, and the new services run during the year numbered 2,659. Gas cooking and heating appliances placed were returned at 9,021, and 8,091 Welsbach lamps were installed. Gas engines (30 in number and totalling 212½ horse power) were placed, and 17 miles of mains were added to the distributing system. During the year the Company piped 3,653 houses.

AT a recent meeting of the Directors in the Chattanooga (Tenn.) Gas Light Company the gross selling rate on all-round use was reduced from $1.40 to $1.20 per 1,000 cubic feet. Prompt payment also entitles the consumer to the following rebates—the concession is to date from March 1st:

Monthly Consumption	Discount per 1,000.
1,000 to 8,000 cubic feet	10 cents.
8,000 and less than 15,000	15 "
15,000 " " 40,000	20 "
Over 40,000	25 "

MR. L. E. EYMAN, President of the Pueblo (Cal.) Company, has authorized contracts which call for the expenditure of $100,000 in plant improvement. Among other things, a holder up to retaining 150,000 cubic feet is specified, as is also a water gas plant of a per diem capacity of 100,000 cubic feet. The existing coal gas plant is to be doubled and the purifying apparatus is to be increased threefold. A comprehensive system of main extensions has also been agreed upon.

PRESIDENT HOLMES, of the Consolidated Gas Company, of Passadena, Cal., has called a meeting of the shareholders for May 12th, when they will be asked to vote upon a proposition to increase the Company's capital stock to $250,000—an addition of $40,000. The proceeds of the increase are to be expended in plant construction.

THE stockholders of the Louisville (Ky.) Gas Company met on the 15th inst. and formally ratified the action of the Directors in arranging for the consolidation of the electric lighting interests of the city, which means the merging of the Louisville Electric Light Company (owned by the Gas Company) with the Citizens Lighting Company, to a new corporation, to be known as the Louisville Lighting Company. The stockholders of the latter will meet on the 1st prox. to perfect an executive organization.

AT the annual meeting of the shareholders of the Nashville (Tenn.) Gas Company no change was made in its executive management. A resolution was adopted increasing the capital stock in the sum of $150,000, which issue will bring the Company's capital up to something over $1,100,000.

THE Kanawna Water and Light Company, of Charleston, W. Va., has completed its organization, for the purpose of taking over and operating the properties of the gas, electric light and street railway companies of Charleston. The officers of the new concern are: Directors, S. B. Elkins, Richard Elkins, C. H. Livingstone, W. F. Sadler, Jr., and C. W. Swisher. The capital of the concern is $1,000,000, and its offices are to be temporarily located in Washington, D.C.

THE price of gas used on illuminating account has been reduced by the proprietors of the Ypsilanti (Mich.) Company to $1.20 from $1.40 per 1,000 cubic feet.

THE contracts for the construction of the new manufacturing plant for the Dixon (Ills.) Power and Lighting Company have been awarded. The plans include the construction of a holder up to retaining 100,000 cubic feet.

AT the annual meeting of the shareholders in the Tonawanda (Pa.) Gas Company the following officers were elected: Directors, N. N. Betts, R. A. Mercur, S. W. Little, Fisher Welles, F. T. Page and C. P. Welles; President, F. Welles; Secretary, N. N. Betts; Treasurer, C. P. Welles.

THE Senate of Connecticut has assented to the petition of the Willimantic Gas and Electric Company for the right to increase its bonds from $200,000 to $300,000. An unfavorable reply, however, was made on the petition to increase its capital stock in like amount.

SOME time ago an attempt was made to set up the claim that the mining laws of the United States did not apply to such lands as oil lands. That contention was made in cases brought into Court, and before the Interior Department, by the Southern Pacific and Northern Pacific Railroad Companies. The land grants of these Companies provide that mineral lands shall not be included within their grants. Some time ago the Northern Pacific Company brought suit involving this question, and the case finally got into the United States Supreme Court. Judge Vandeventer, Assistant Attorney-General, came into the case for the United States. The case was recently decided by the Supreme Court. The Court held that all lands containing mineral deposits, like oil, are mineral lands; that such lands are exempt from railroad grants, and that the mining laws of the United States apply to them and govern their workings. This decision is regarded as one of the most important ever made, as affecting oil lands in California and Texas.

Electricity says that on the 26th ult. the London Institution of Electrical Engineers devoted its sitting to the development history of the Nernst lamp. The matter was introduced by Mr. J. Stöttner, who is one of the London representatives of the Allgemeine Elektricitäts Gessellschaft of Berlin, and who had lately visited that company's lamp works. He exhibited many different types to demonstrate the development of the lamp from its earliest stage up to its present design. The A. E. G. had supplied him with original samples, the filaments all being made of rare earths, principally zirconia, and these samples, we believe, are to find a permanent resting-place in the museum of the Institution. A good discussion followed the reading of the paper and some of the statements made by different engineers go to show that some of the few English lighting authorities who have been giving the lamps a trial for street illumination purposes are not so satisfied therewith as to be able to see their way to extend the application. In the course of his lecture Mr. Stöttner exhibited some filaments which had been burned for as many as 1,400 and 1,600 hours respectively. One of these specimens showed that it was a crystalline structure and it was black throughout. The discoloration started at the negative pole and gradually extended over the whole filament. It is not at present known what is the precise reason for this crystallization and blackening, but the assumption is that electrolysis is the cause. It was, perhaps, pardonable for Mr. Stöttner, being interested in the sale of the A. E. G. type of lamp, to say that that lamp was at least as up-to-date as that which had been developed in the United States.

THE annual convention of the Canadian Electrical Association will be held in Toronto, June 10, 11 and 12. The local committee consists of all members of the Association residing in Toronto, with Mr. J. J. Wright as convener. Messrs. P. G. Gossler, of Montreal, A. A. Dion, of Ottawa, and J. J. Wright, of Toronto, form the committee to award prizes for papers of superior merit. It is expected that the coming convention will be largely attended, especially by the Western members, and that the programme will combine in a profitable degree instruction and pleasure.

THE AMERICAN GAS LIGHT JOURNAL

A. M. CALLENDER & CO.,
PROPRIETORS.

THOS. J. CUNNINGHAM,
ELBERT P. CALLENDER,
EDITORS.

CHAS. E. SANDERSON,
MANAGER.

PUBLISHED ON EACH MONDAY OF THE YEAR AT
No. 42 Pine Street, New York.
Telephone, 2996 John.

TERMS:

SUBSCRIPTION—Three Dollars per annum, in advance. Single copies, 10 Cents.

The JOURNAL is the official organ of the
NEW ENGLAND ASSOCIATION OF GAS ENGINEERS.
AMERICAN GAS LIGHT ASSOCIATION.
WESTERN GAS ASSOCIATION.
OHIO GAS LIGHT ASSOCIATION.

Notification Respecting Advertising.—Orders for new advertising, or for changes in standing advertisements, to insure attention in the issue following their reception, must be in hand any time of Wednesday.

AGENTS:

New York—American News Co. 39 and 41 Chambers St.
Germany—Lemcke & Buechner, of New York.
England—Aug. Siegle, 30 Lime Street, London.

MONDAY, MARCH 23, 1903.

The Market for Gas Securities.

The municipal electric lighting plant that is being proposed for New York city by Messrs. Low and Munroe, had much to do with a sharp break in Consolidated last week. The stock sold down to 200, but subsequently rallied sharply, the closing having been made to-day (Friday) at 209⅛ to 209½. The measure before the Legislature is not at all likely to pass, nor has any other of similar nature a better chance of becoming law. The amateurs now in charge of the city's affairs have, in fact, shown themselves incapable of attending to that which the city now owns and directs, so wherefore intrust either them or their successors with the direction of still weightier matters?

Brooklyn Union is quoted at 211 to 212½, which is the lowest asking price named for it in many months. There is no good reason for the nominal break. Peoples, of Chicago, is again on the mend, and Consolidated, of Baltimore, remains unchanged. Washington, D.C., is down 10 points. That is, however, only a temporary setback.

Gas Stocks.

Quotations by George W. Close, Broker and Dealer in Gas Stocks.

16 WALL STREET, NEW YORK CITY.

MARCH 23.

☞All communications will receive particular attention.

☞The following quotations are based on the par value of $100 per share.

N. Y. City Companies.	*Capital.*	*Par.*	*Bid.*	*Asked.*
Consolidated	$73,177,000	100	209⅛	209½
Central Union, Bonds, 5's.	3,000,000	1,000	109	111
Equitable Bonds, 6's	1,000,000	1,000	105	..
" 1st Con. 5's	2,300,000	1,000	118	120
Metropolitan Bonds	658,000	..	108	112
Mutual	3,500,000	100	310	325
Municipal Bonds	750,000	..	..	..
New Amsterdam Gas Co..				
Bonds, 5's	11,000,000	1,000	112½	113
Northern Union, Bonds, 5's.	1,250,000	1,000	106	107
New York and East River				
Bonds 1st 5's	3,500,000	1,000	112	113
" 1st Con. 5's	1,500,000	..	109	111
Standard	5,000,000	100	131	..
Preferred	5,000,000	100	152	..
Bonds, 1st Mortgage, 5's	1,500,000	1,000	115½	118
Yonkers	299,650	500	130	
Out-of-Town Companies.				
Brooklyn Union	15,000,000	100	211	212½
" " Bonds (5's)	15 000,000	1,000	119	119½
Bay State	50,000,000	50	⅝	⅞
" Income Bonds	2,000,000	1,000	..	75
Binghamton Gas Works	450,000	100	28	30
" 1st Mtg. 5's	500,000	1,000	93	96
Boston United Gas Co.—				
1st Series S. F. Trust	7,000,000	1,000	82	85
2d " " "	3,000,000	1,000	47½	50
Buffalo City Gas Co.	5,500,000	100	8½	10
" " Bonds, 5's	5,254,000	1,000	79	80
Capital, Sacramento	500,000	50	..	35
Bonds (6's)	150,000	1,000	..	..
Central San Francisco	900,000	..	106	108
Chicago Gas Co. Guaranteed Gold Bonds	7,650,000	1,000	104	104¼
Cincinnati Gas & Elec. Co..	20,500,000	100	102	102½
Columbus (O.) Gas Co., 1st Mortgage Bonds	1,500,000	1,000	101	101½
Columbus (O.) Gas Lt. & Heating Co	1,682,750	100	88¾	89⅛
Preferred	3,026,500	100	107½	109
Consumers, Jersey City Bonds	600,000	1,000	103	106
Consumers, Toronto	1,700,000	50	218	225
Consolidated, Baltimore	11,000,000	100	70	..
Mortgage, 6's	3,600,000	..	..	118
Chesapeake, 1st 6's	1,000,000	..	..	..
Equitable, 1st 6's	910,000	..	..	..
Consolidated, 1st 5's	1,490 000	..	..	112
Consolidated Gas Co. of N.J.	1,000,000	100	15	17
" Con. Mtg. 5's	880,000	1,000	86	87
Consolidated G. & E. Co.'s. Little Falls, N.Y.	90,000	100	..	100
Bonds	75,000	..	..	100
Detroit City Gas Co.	4,825,500	50	..	89
" Prior Lien 5's	5,603,000	1,000	99½	100
Detroit Gas Co., 5's	281,000	1,000	77	79
" Inc. 5's	16,000	100	98½	100
Equitable Gas & Fuel Co., Chicago, Bonds	2,000,000	1,000	..	101
Essex and Hudson Gas Co.	6,500,000	..	34	38
Fort Wayne	2,000,000	..	..	..
" Bonds	2,000,000	..	55	..
Grand Rapids Gas Lt. Co. 1st Mtg. 5's	1,225,000	1,000	104½	105
Hartford	750,000	25	245	265
Hudson County Gas Co., of New Jersey	10,500,000	..	25	..
" Bonds, 5's	10,500,000	..	101	103
Indianapolis	2,000,000	..	80	85
" Bonds, 6's	2,650,000	..	105	107
Jackson Gas Co	250,000	50	73	75
" 1st Mtg. 5's	200,000	1,000	101	102½
Kansas City Gas Light Co., of Missouri	5,000,000	100	..	36
Bonds, 1st 5's	3,822,000	1,000	102	104
Laclede, St. Louis	10,000,000	100	92½	..
Preferred	2,500,000	100	100	110
Bonds	10,000,000	1,000	109½	110
Lafayette Gas Co., Ind.	1,000,000	100	.	60
Bonds	1,000,000	1,000	60	65
Louisville	2,570,000	50	130	140
Madison Gas & Elec. Co.				
" 1st Mtg. 6's	350,000	1,000	107½	108½
" 6 per cent. scrip, due 1910	100,000	25	85	87
Montreal, Canada	2,000,000	100	218	184¾
Nashville Gas Lt. Co.	1,000,000	100	110	..
Newark, N. J., Con. Gas Co	6,000,000	..	56	58
Bonds, 6's	4,600,000	..	105	105¾
New Haven	1,000,000	25	300	325
Oakland, Cal.	2,000,000	..	46	47
" Bonds	750,000	..	..	.
Peoples G. L. & Coke Co., of Chicago	25,000,000	100	103⅛	103½
Peoples Gas Lt. & Coke Co., Chicago, 1st Mortgage	20,100,000	1,000	..	..
2d "	2,500,000	1,000	104	
Rochester Gas & Elec. Co..	2,150,000	50	88	..
Preferred	2,150,000	50	118	..
Consolidated 5's	2,000,000	..	87½	90
San Francisco, Cal.	10,000,000	100	52¾	53
St. Joseph Gas Co.				
" 1st Mtg. 5's	751,000	1,000	95	96½
St. Paul Gas Light Co	1,500,000	100	45	47
1st Mortgage 6's	650,000	1,000	113	116
Extension, 6's	600,000	1,000	112½	115
General Mortgage, 5's	2,465,000	1,000	92	93
Syracuse, N. Y.	1,975,000	100	42	45
Bonds	2,047.000	1,000	98½	99½
Washington, D. C	2,600,000	20	410	411⅝
First mortgage 6's	600,000	..	..	..
Western, Milwaukee.				
Bonds, 5's	4,000,000	..	109½	110
Wilmington, Del.	600.000	50	232	

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STOCKHOLDERS' MEETING.

OFFICE OF THE UNITED GAS IMPROVEMENT CO., N. W. CORNER BROAD AND ARCH STS., PHILADELPHIA, PA., February 27, 1903.

The Annual Meeting of the Stockholders of the United Gas Improvement Company will be held at the office of the Company, northwest corner of BROAD AND ARCH STS., PHILADELPHIA, on Monday, May 4, 1903, at 12 o'clock, noon, for the purposes of electing a President and six Directors, to serve for the ensuing year, considering and acting upon the subject of a proposed increase in the capital stock of the Company from 565,000 shares, of the par value of $50 each, to 784,500 shares, of the par value of $50 each, and transacting such other business as may properly come before the meeting.

The stock transfer books will be closed from 3 P.M., April 28, until 9 A.M., May 5th.

By order of the Board of Directors.

1448-8 LEWIS LILLIE, Secretary.

DIVIDEND NOTICE.

OFFICE OF THE UNITED GAS IMPROVEMENT CO., N. W. CORNER BROAD AND ARCH STS., PHILADELPHIA, PA., March 11, 1903.

The Directors have this day declared a quarterly dividend of 2 per cent. (one dollar per share), payable April 15th, 1903, to stockholders of record at the close of business, Mar. 31, 1903. Checks will be mailed.

1450-4 LEWIS LILLIE, Treasurer.

MISS LILY HAXWORTH,

Cooking Teacher and Lecturer,

(GOLD MEDALLIST),

Is open for engagements. For terms, etc.,

1441-3m Address 323 QUINCY ST., BROOKLYN, N. Y.

Position Wanted

AS MANAGER OF A GAS COMPANY.

By a man of 36. Fifteen years' experience in the management of coal and water gas plants. Can furnish good references. Address, "H. M. G.,"

1450-2 Care this Journal.

Situation Wanted

As Manager or Superintendent of a Coal Gas Plant.

Nine years' experience in plant construction, manufacture and distribution of coal gas, laying mains and services, handling gas stoves and fixture trade; also, piping houses and estimating cost of same. Good references.

1450-2 Address, "B. S.," care this Journal.

POSITION WANTED

AS GAS MAKER,

By a man of 15 years' experience. Was for 7 years in charge of small plant operating the Lowe process. Would prefer a small plant. Best of references,

1450-1 Address, "H. M. B.," care this Journal.

WANTED,

Position as Manager or Superintendent of Gas or Electric Interests.

Ten years' experience in construction, operation and management. Last 4 years in South.

1450-2 Address, "P. O. BOX 51," Jacksonville, Fla.

Position Wanted

By a Practical and Experienced Man

in all details in connection with the gas business; construction, manufacturing, distribution and office work. Correspondence solicited. Address, "EXPERIENCE,"

1448-tf Care this Journal.

SITUATION WANTED

As Manager of Coal Gas Plant

In town of 25,000 or less. Am now employed as manager of gas and electric light company, but have best of reasons for wishing to change. Address, "B. Z.,"

1447-5 Care this Journal.

WANTED,

POSITION AS CANVASSER,

OR TO TAKE CHARGE OF

NEW BUSINESS,

And push gas appliances. Good references.

1449-2 Address, "EMPLOYED," care this Journal.

WANTED,

A GAS SUPERINTENDENT.

A man under 45 years of age can secure a position as superintendent of a gas plant in a city of 30,000 inhabitants (putting out 60,000,000 cubic feet of gas per annum), if he is experienced and competent. The possibilities of the position will command the attention of any good gas man.

1447-tf Address, "B.," care this Journal.

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A man under 40 years of age, in a city of about 30,000 population; selling about 55,000,000 cubic feet per annum. This position offers exceptional opportunities for a man of the right abilities. Address, "No. 3,"

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90	"	10	"	"	"	"
60	"	8	"	"	"	"

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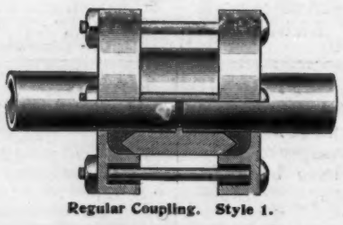
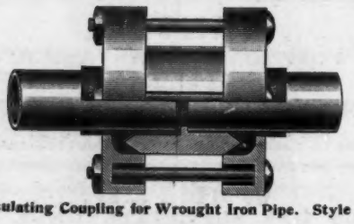

Regular Coupling. Style 1.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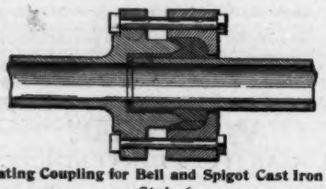
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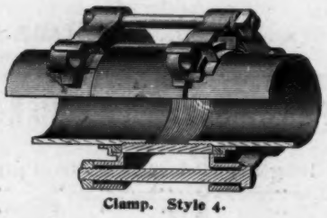
Clamp. Style 4.

Pipe Couplings, Sleeves, Clamps, Crosses, Tees and Ells.

My insulating Coupling prevents the destruction of pipe by electrolytic action, in either water or gas lines.

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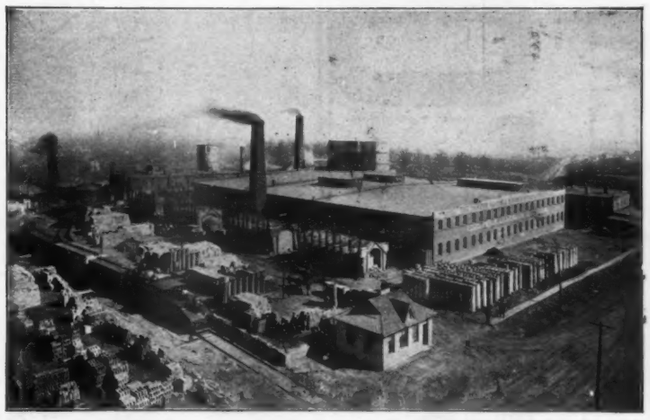

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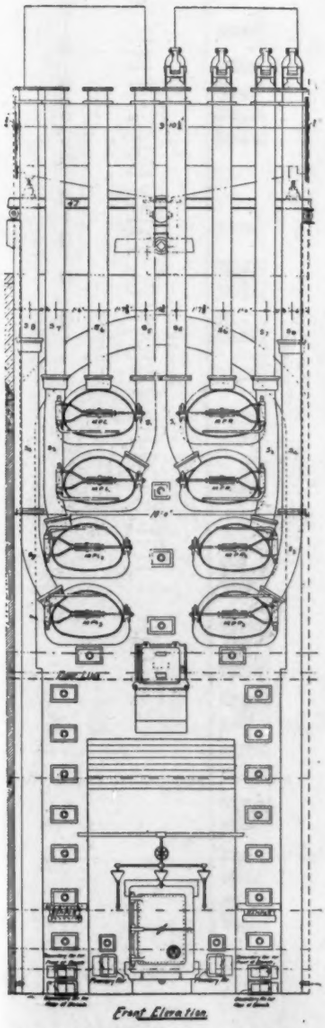

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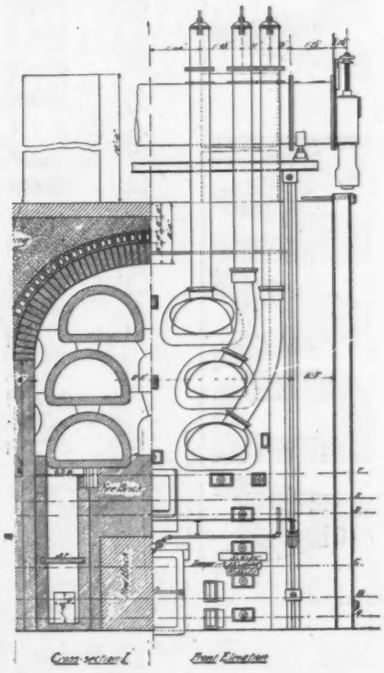

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See Articles in AMERICAN GAS LIGHT JOURNAL, February 9th and 16th, 1903.

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A simple little device which fits any mantle burner, is instantly adjusted by a slight twist to the right or left.

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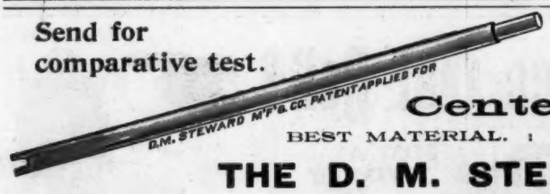

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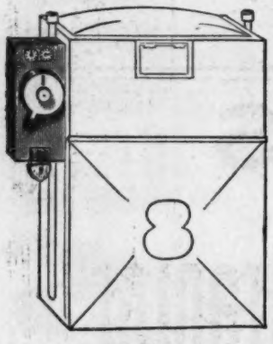

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Gives consumer more than 10 hours' warning before gas goes out. Ten dollars can be prepaid at one time. Can be fitted to any make of meter. Device cannot be "beaten." :: :: :: :: :: :: :: :: :: :: :: :: :: ::
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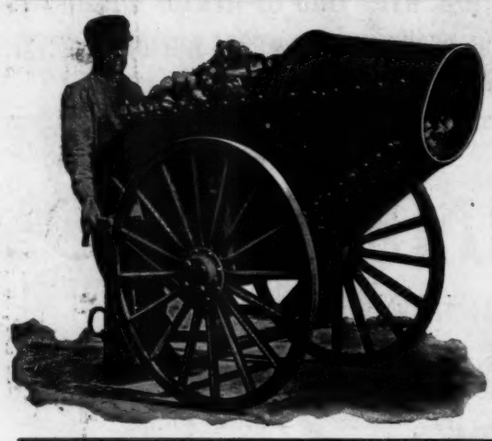

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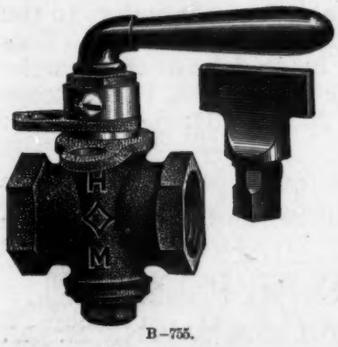

B-755.

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Where

d = diameter of pipe in inches,

p_1 = absolute initial pressure in pounds per square inch,

p_2 = absolute terminal pressure in pounds per square inch,

L = length of pipe in miles,

w = specific gravity of the fluid when air = 1.

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(1.) Set the specific gravity of the fluid opposite the length of pipe;

(2.) Bring the DIFFERENCE of the initial and terminal gauge pressures opposite the SUM of the initial and terminal gauge pressures;

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Price of the Computers, in Cloth Case, 6½ x 8 inches, $5 Each, Net.

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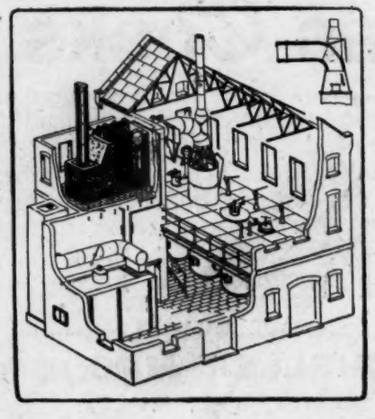

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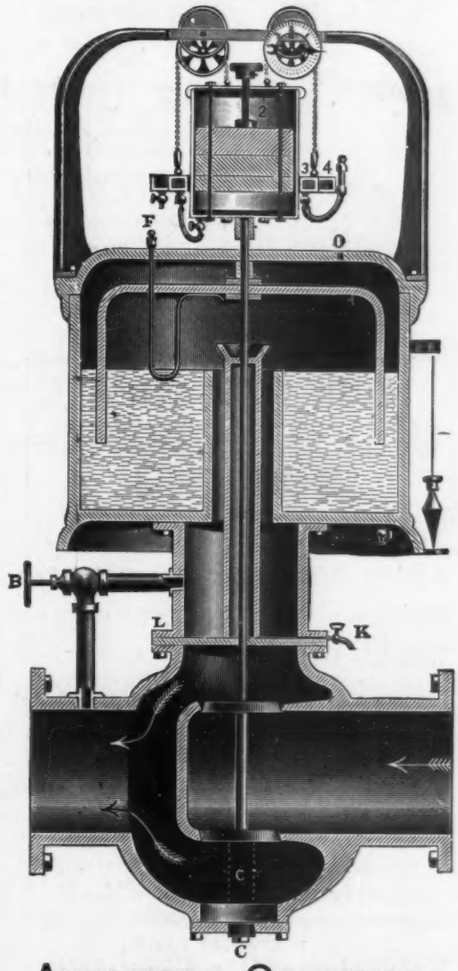

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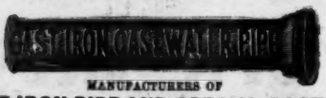

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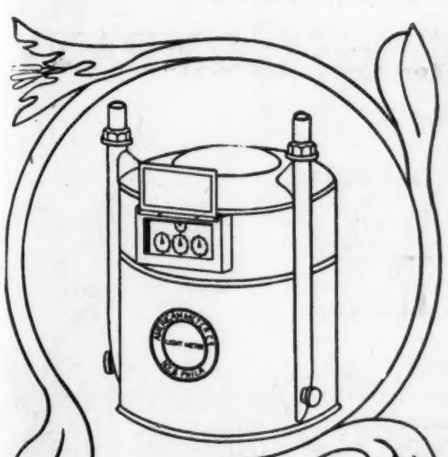

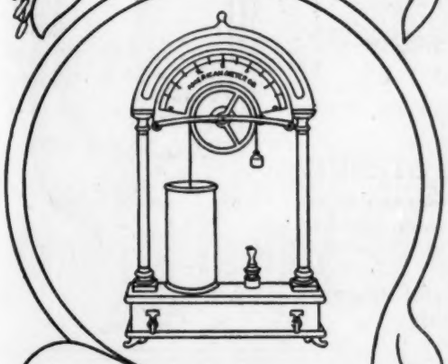

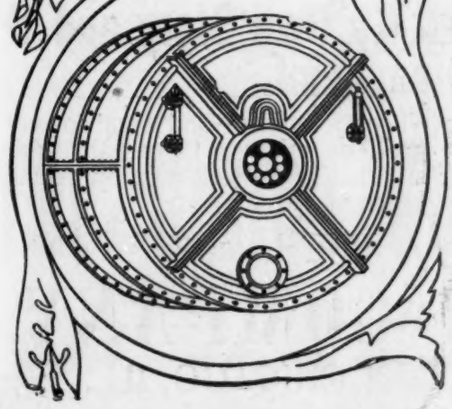

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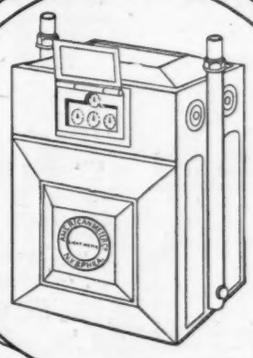

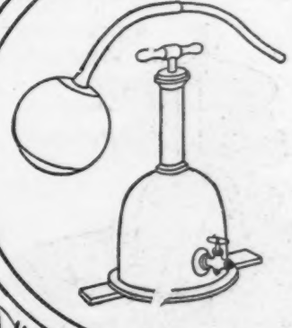

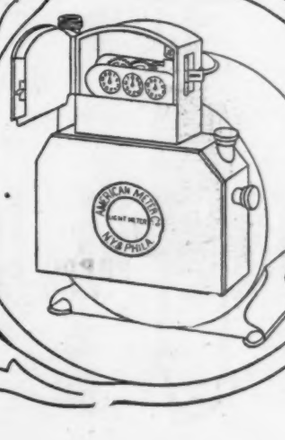

PUBLIC LIGHTING TABLE.

APRIL, 1903.

Day of Week.	Date.	Table No. 1. Following the Moon. Light.	Table No. 1. Following the Moon. Extinguish.	Table No. 2. New York City. All Night Lighting. Light.	Table No. 2. New York City. All Night Lighting. Extinguish.
				P.M.	A.M.
Wed.	1	6.50 PM	4.50 AM	6.10	4.55
Thu.	2	10.30	4.50	6.15	4.40
Fri.	3	11.30	4.50	6.15	4.40
Sat.	4	12.20 AM FQ	4.50	6.15	4.40
Sun.	5	1.10	4.40	6.15	4.40
Mon.	6	1.50	4.40	6.15	4.40
Tue.	7	2.30	4.40	6.15	4.40
Wed.	8	3.10	4.40	6.15	4.40
Thu.	9	3.40	4.40	6.25	4.30
Fri.	10	No L.	No L.	6.25	4.30
Sat.	11	No L. FM	No L.	6.25	4.30
Sun.	12	No L.	No L.	6.25	4.30
Mon.	13	7.10 PM	9.30 PM	6.25	4.30
Tue.	14	7 10	10.30	6.25	4.30
Wed.	15	7.10	11.20	6.25	4.30
Thu.	16	7.10	12.10 AM	6.30	4.20
Fri.	17	7.10	1.00	6.30	4.20
Sat.	18	7.10	1.40	6.30	4.20
Sun.	19	7.10 LQ	2.20	6.30	4.20
Mon.	20	7.10	2.50	6.30	4.20
Tue.	21	7.10	3.20	6.30	4.20
Wed.	22	7.10	4.00	6.30	4.20
Thu.	23	7.10	4.10	6.40	4.10
Fri.	24	7.10	4.10	6.40	4.10
Sat.	25	7.10	4.10	6.40	4.10
Sun.	26	7.20	4.10	6.40	4.10
Mon.	27	7.20 NM	4.10	6.40	4.10
Tue.	28	7.20	4.10	6.40	4.10
Wed.	29	7.20	4.10	6.40	4.10
Thu.	30	7.20	4.10	6.45	4.00

TOTAL HOURS LIGHTING DURING 1903.

By Table No. 1.	Hrs.Min.	By Table No. 2.	Hrs.Min.
January	245.00	January	423.20
February	192.00	February	355.25
March	201.00	March	355.35
April	167.20	April	298.50
May	152.00	May	264.50
June	131.00	June	234.25
July	140.40	July	243.45
August	156.20	August	280.25
September	171.20	September	321.15
October	198.20	October	374.30
November	216.30	November	401.40
December	232.10	December	433.45
Total, yr.	2203.40	Total, yr.	3987.45

NEW YORK, 33 Nassau Street. PHILADELPHIA, Bread and Arch Streets. CHICAGO, Foot of Orleans Street. BOSTON, 624 Tremont Building.
CLEVELAND, 809 Cuyahoga Building. ST. LOUIS, 712 Roe Building. SAN FRANCISCO, 712 Polk Street.

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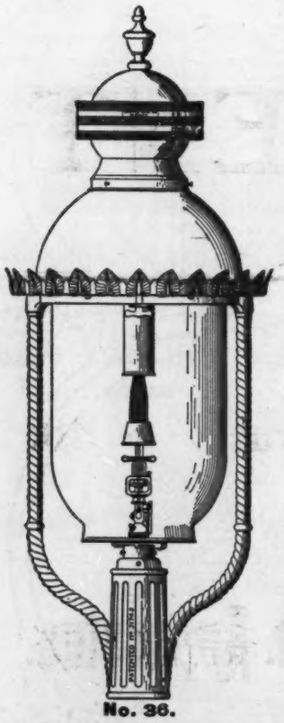

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By means of the Welsbach System of street lighting the superiority of GAS over electricity for street lighting has been fully demonstrated.

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IT LIGHTS THE STREET.

Where there are no gas mains we can furnish an equally good light by our SELF-GENERATING NAPHTHA WELSBACH BURNER, and thereby supply a uniform light in all localities.

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The cut tells the story—but not all of it. Get one lamp and light it—then the tale's told from beginning to end. For one Welsbach Gas Arc Lamp is a better salesman than 20 pages of advertising.

Here's what it would show if you give it a chance to prove its worth:

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3. The greatest amount of candle power with least consumption of gas.
4. A by-pass cock so constructed as to permit all or only one mantle burning at a time.
5. A pilot light that consumes but 1 foot of gas in 24 hours. Costs $\frac{1}{10}$ of a cent a day.

Give it a Chance to Tell its Own Story and it Won't Disappoint.

Let us send you one lamp—doesn't cost a fortune—and it will answer every question you put to it; make good on every test given it. You know the only proof of the pudding? What's the use in a fellow telling you it tastes good? Taste it yourself, then you know.

May we Send you ONE Lamp?

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Blue Island, Ills.	Jersey City, N. J.	Oneonta, N. Y.
Boonton, N. J.	Laconia, N. H.	Plainfield, N. J.
Brooklyn, N. Y.	Lakewood, N. J.	Portland, Me.
Carlisle, Pa.	La-Salle-Peru, Ills.	Pottsville, Pa.
Champaign, Ills.	Martinsville, Ind.	Scranton, Pa.
Coney Island, N. Y.	Memphis, Tenn.	South Brooklyn, N. Y.
Dallas, Tex.	Newark, N. J.	Suffern, N. Y.
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TOTAL SETS, 1902, ... 51
TOTAL DAILY CAPACITY, 1902, . . 32,825,000 cubic feet.
TOTAL SETS TO DATE, ... 447
TOTAL DAILY CAPACITY, ... 299,670,000 cubic feet.

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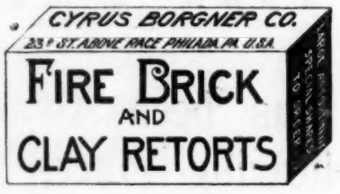

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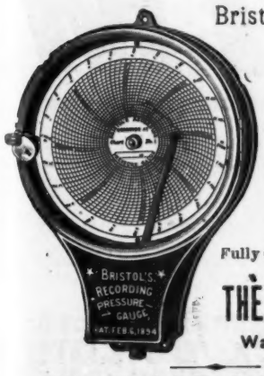

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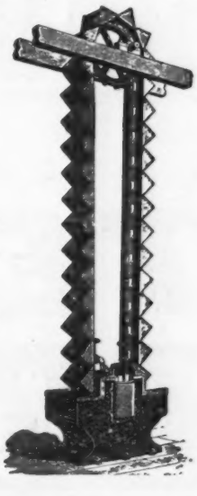

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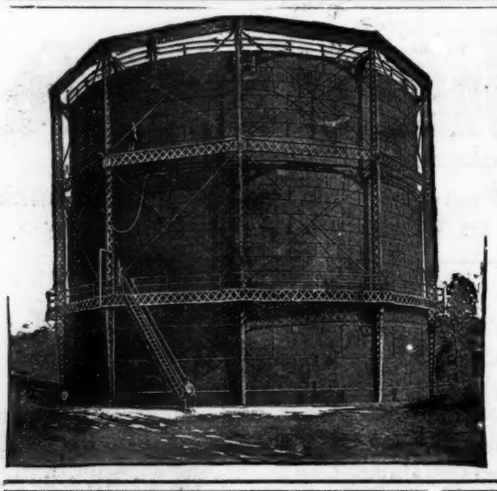

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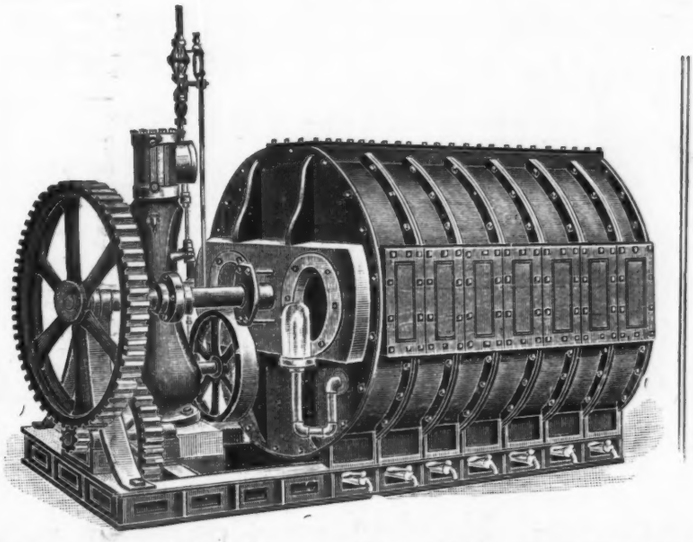

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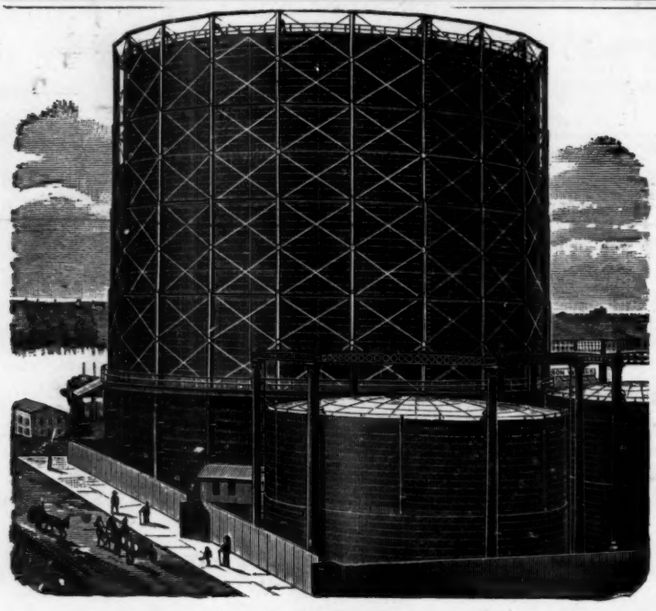

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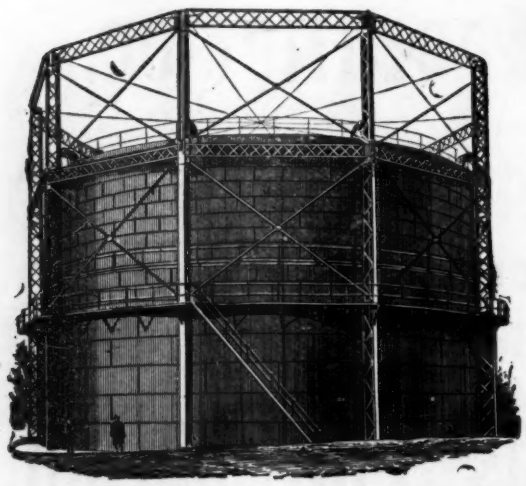

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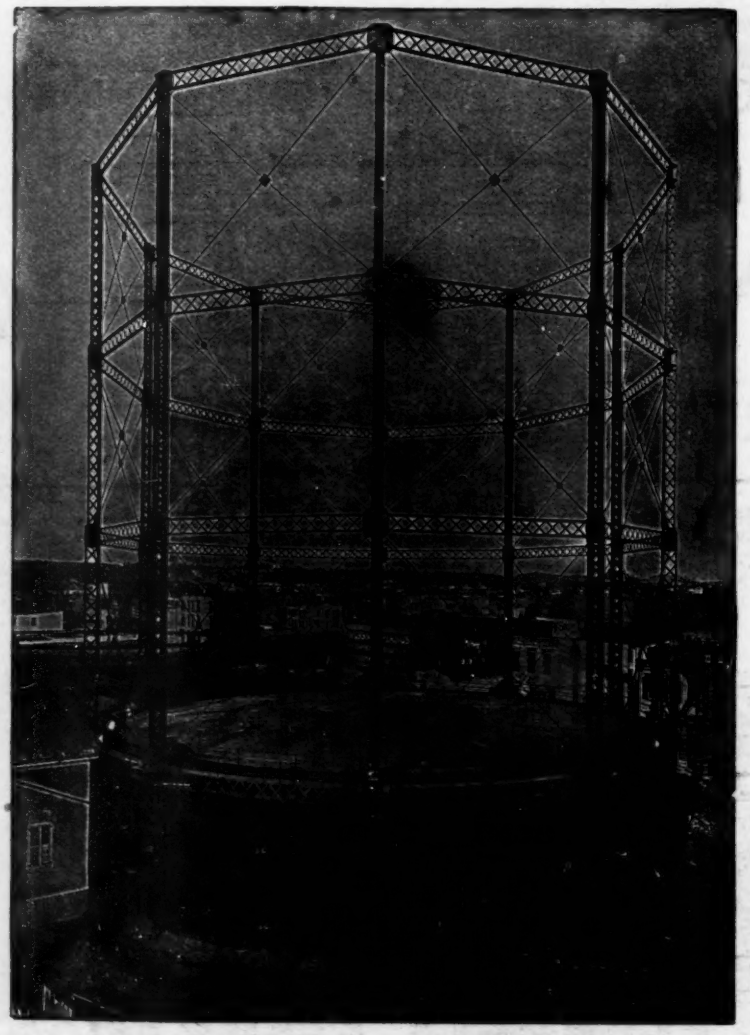

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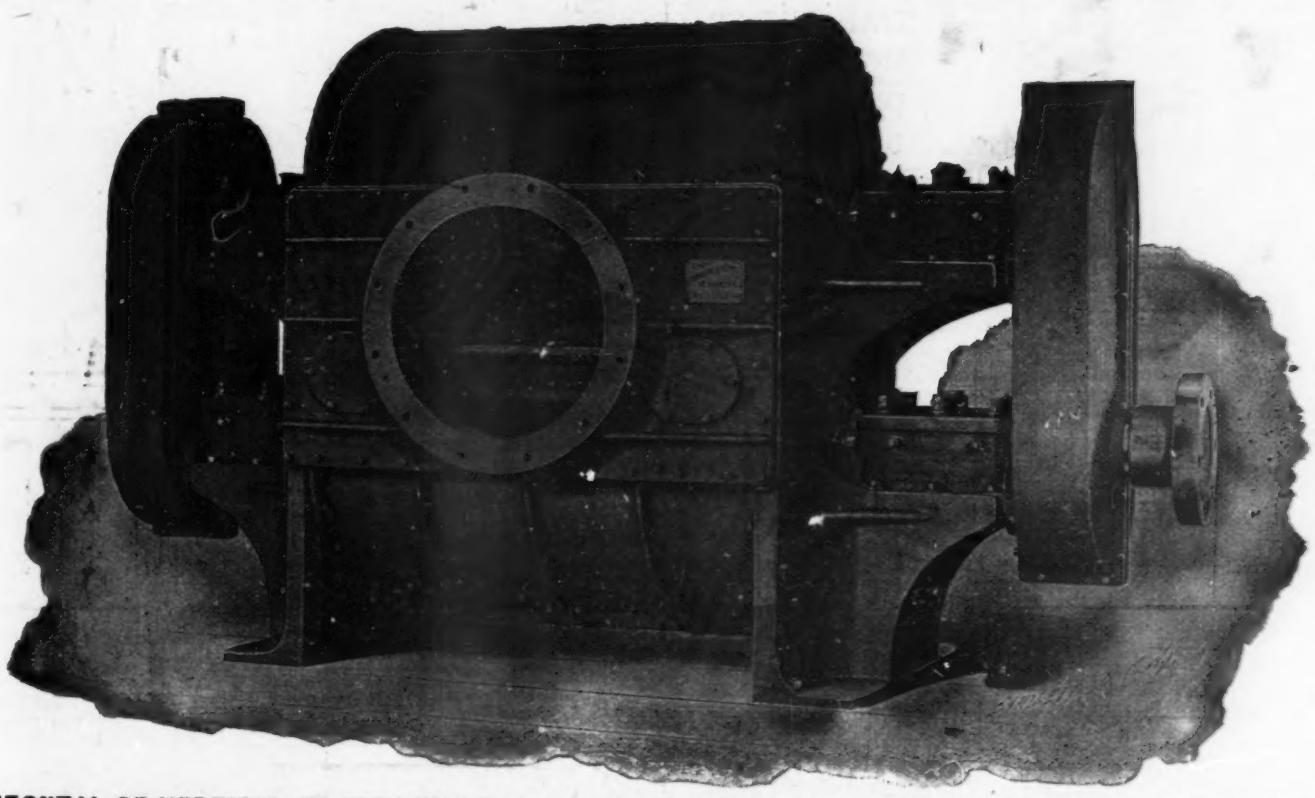

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